The Mining Journal
RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 735.—Vol. XIX.] LONDON, SATURDAY, SEPTEMBER 22, 1849. [Price 6d.

DENBIGHSHIRE, FLINTSHIRE, AND THE CITY OF CHESTER.
LARGE AND IMPORTANT SALE OF FREEHOLD AND LEASEHOLD ESTATES, AND OTHER PROPERTY.

MR. R. W. JOHNSON will SELL, BY AUCTION, at the Wynnstay Arms Hotel, in WREXHAM, on Tuesday, the 25th day of September inst., at the hour of Two o'clock in the afternoon, in the following or such other lots as shall be then decided upon, and subject to the conditions to be then produced, 1

THE VERY DESIRABLE
FREEHOLD MESSUAGES,

FARM LANDS, TENEMENTS, and HEREDITAMENTS, containing valuable MINES of COAL, IRONSTONE, LEAD ORE, &c., lately the property of James Kyrke, Esq.—the situation, description, and quantity of which are next hereinafter mentioned:—

DENBIGHSHIRE.
BRYMBO, IN THE PARISH OF WREXHAM.

Lots.	Names. Occupiers.	Acreage. A.	R.	P.
1.	Upper Glascoed and Pew in Minera Church — James Kyrke	98	3	5
2.	Middle Glascoed — John Turner and others	27	3	20
3.	Lower Glascoed and Pew in Minera Church — John Hughes	77	3	34
4.	Pentre Saison, and part of land belonging thereto — Robert Williams	97	1	34
5.	Cefn, with remaining part of Pentre Saison — Edward Roberts	48	0	10
6.	Fynnon-y-cwrt — Thomas Parry	38	0	17
7.	Ween — John Jones, T. Parry, & others	76	2	10
8.	The Gorse — Thomas Williams	5	2	9
9.	Cefn Bychan — William Jones	3	3	7
10.	Part of Coed-y-felin — Lately James Kyrke	26	1	29
11.	Cefn-y-Maes — David Roberts	9	0	6
12.	One Quarter Share of Commutation Rent Charge, in lieu of tithes of hay and corn, in the township of Brymbo, amounting, according to the apportionment of the commissioners, to £75 per annum, but subject to a fee-farm rent of £6 15s. per annum.			

FLINTSHIRE.
UCHYMYNYDD ISA, IN THE PARISH OF HOPE.

13.	Tenement near Frith Turnpike Gate — Samuel Davies	4	0	28

DENBIGHSHIRE.
BROUGHTON, IN THE PARISH OF WREXHAM.

14.	Bryn Teg — Thomas Mannel. Extremely valuable as a surface and mineral property.	14	1	14
15.	Nathaniel Jones Tenement — Benj. Piercy and others	1	3	32
16.	Moss Quarry Tenement — Thomas Hughes and others	2	2	32
17.	Cae Salisbury — Samuel Jones	3	0	16
18.	Cae Sheat — George Ellis. This and the preceding lot are full of excellent coal.	5	0	12
19.	Cottages, Bakehouse, and Croft, near Brymbo Blast Furnaces — George Kyrke, Esq.	0	3	32

PARISH OF RUABON.

20. Four substantial Stone Cottages at Rhos-y-medre, near to the church, with large Gardens — Evan Roberts and others.

PARISH OF LLANFAIRDYR-YN-MOCHNANT.

21.	Bryn Glas — Robert Roberts. Subject to a rent-charge of £3 per annum, or thereabouts, to the poor of the parish.	116	0	33

CITY OF CHESTER.

22. Large & commodious House and Shop, No. 105, Eastgate-street — Mr. Edward Peters, brazier.

Total acreage 648 0 29

ALSO, THE LEASEHOLD ESTATES

of the said James Kyrke, in the under-mentioned property:—

Lot 23.—MESSUAGES, COTTAGES, TENEMENTS, and LAND, containing in the whole 4 A. 1 R. 22 P., in Bagillt, in the parish of Holywell, Flintshire (part of which, called "The Ropery," is underleased to the parish of Holywell), held for a term of years ending 25th December, 1894, and producing a net rental of £48 per ann., or thereabouts.

Lot 24.—The PENYCOED COLLIERY, in Brymbo aforesaid, extending to the minerals under 90 acres of land, adjoining the Brymbo Branch of the Shrewsbury and Chester Railway—adjacent to which a wharf has been constructed for the use of the colliery.—Also, the absolute interest in the PLANT, consisting of a winding engine, 6-horse power (incomplete).—Also, the USE of a DAY LEVEL, lately driven at great expense for drainage. An inventory and valuation will be produced at the sale, and the purchaser is to take the same at such valuation.

Lot 25.—The PLASMAEN COLLIERY (near the Frood), and the absolute interest in the PLANT, consisting of a large pumping engine, &c.—This colliery is situated in a good turnpike-road, and commands an excellent local sale.—Also,

THE SHARES

of the said James Kyrke, in several COLLIERIES and MINES, as under:—

Lot 26.—TWENTY-THREE (96ths) SHARES in the BRYNMALLY COLLIERY, near Wrexham, and the MINERALS under 173 acres of land, together with the PLANT, consisting of engines (pumping and winding), and other colliery implements and materials.—A branch of the Shrewsbury & Chester Railway has been brought to the pit's mouth.

Lot 27.—ONE-THIRD SHARE in the STEDDFOD LIME WORKS and ROCKS, at Minera, near Wrexham.

Lot 28.—ONE-FOURTH SHARE in the STEAM PUMPING ENGINE and MACHINERY at the CRAIGIOG LEAD MINE, at Llanarmon-yn-Yale, in the county of Denbigh.

Lot 29.—TWO (16ths) SHARES in a large PUMPING ENGINE and MACHINERY on the CITY LAND, at Miners aforesaid.

Lot 30.—ONE-FIFTH SHARE in two large PUMPING ENGINES on Mr. R. V. Kyrke's tenement, at Miners.

Lot 31.—TWELVE and a HALF (53ds) SHARES in the POOL PARK LEAD MINE, near Wrexham, now working to a profit.

Lot 32.—FOUR (28ths) SHARES in that promising and now profitable LEAD MINE, called the TALACRE MINE, in the parish of Llanasa, in the county of Flint.

POLICY.

Lot 33.—A POLICY OF INSURANCE of the Sun Life Office, for the sum of FIVE HUNDRED POUNDS, payable within three months after the death of Mrs. Catherine Williams, of Mold, aged 51 years, or thereabouts, and subject to an annual premium of £17 2s. 11d.

The principal part of the freehold estates lies within the distance of 4 miles from the populous town of Wrexham, from whence there is a railway communication to all parts of the kingdom. The various farms, many of them having been at different times in the occupation of the late proprietor, are in a high state of cultivation: they are situate in a fertile and sporting country, and in a neighbourhood distinguished for respectability, and abounding in game. The mineral trade in the immediate locality of the bulk of these estates is in a state of great activity; and a branch of the Shrewsbury and Chester Railway has been brought very near to several of the estates now advertised for sale. The roads of the neighbourhood are good, and the facilities for all kinds of internal communication are great. Lime abounds within a very short distance. A church has been erected at Brymbo, within a mile of the various farms in that township.

The property in the parish of Wrexham may be viewed upon application to James Kyrke, Esq., of Glascoed, near Wrexham; Mr. John Griffiths, of Glanrafon, Brymbo; and the whole thereof upon reference to the various tenants. William Rowe, Esq., of Mount-street House, Wrexham, will give information as to the strata of coal, &c.

Printed particulars, with plans of the estates, may be had from the said James Kyrke and William Rowe; George Morgan, Esq., official assignee, Liverpool; the Wynnstay Arms and Lion Hotels, Wrexham; the Black Lion Hotel, Mold; the Wynnstay Arms Hotel, Oswestry; the Royal, Feathers, and Albion Hotels, Chester; the White Lion Hotel, Ruthin; the Crown Hotel, Denbigh; and also from John Buck Lloyd, Esq., Exchange-alley; Messrs. H. and T. Forshaw, solicitors, Castle-street; Messrs. Evans and Son, solicitors, Commerce-court, Lord-street; and Richard Blundell, Esq., solicitor, 6, Cook-street, Liverpool; Messrs. Williams and Edwards, solicitors, Denbigh; Messrs. Hayward and Son, solicitors; Messrs. Longueville and Williams, solicitors, Oswestry; John Lewis, Esq., solicitor, Wrexham; Robert Edwards, Esq., solicitor, Ruthin; and at the office of Messrs. James and Owen, solicitors, Wrexham, where a general map of the estates and sections of the mines may be seen, and other particulars obtained.

Wrexham, Sept. 10, 1849.

VALUABLE AND EXTENSIVE MINES OF COAL AND IRONSTONE. 2

TO BE LET, ON LEASE, on most advantageous terms, the COAL and IRONSTONE under a very large tract of land, in the parish of RUABON in the county of DENBIGH, adjoining the Shrewsbury and Chester Railway.

The proprietors of the ESTATES on which the Ponkey and Aberderiyn Iron-Works were formerly carried on, have made arrangements TO LET BOTH PROPERTIES TOGETHER, which will give the lessee of them facilities to carry on a lucrative business—very rarely to be met with.

The COALS and IRONSTONE on these ESTATES may be raised at very much less than an average cost, and the quantity proved in them (besides what are under a very large portion of one of them, in which there is no doubt they will be found) is estimated will supply iron-works with materials to make 400 tons of pig-iron weekly for upwards of 30 years, as well as 50,000 tons of the much and justly-celebrated Yard and Wall and Bench Coals per annum for sale, for the same period.

Printed particulars of the property, and lithographed plans of the estates, showing the minerals under them, with calculations as to the expense of making iron from them, as compared with that of manufacturing it in Staffordshire, may be had upon application at the office of the *Mining Journal*, 26, Fleet-street; and at J. Boydell's, 54, Threadneedle-street, London; and at Messrs. Longeville and Williams, solicitors, Oswestry.

Oswestry, June 6, 1849.

TO COLLIERY OWNERS, RAILWAY PROPRIETORS, DOCK COMPANIES, ENGINEERS, CONTRACTORS, AND OTHERS.
At the COLLIERY, CHARTERSHAUGH, near the Washington and Penshaw Stations of the York, Newcastle, and Berwick Railway.

MR. W. I. BARKER has been favoured with instructions to OFFER FOR SALE, BY PUBLIC AUCTION, without reserve, on Wednesday, the 26th day of September, 1849, the whole of the valuable 3

COLLIERY PLANT,

WORKING STOCK, and MATERIALS, comprising a first-rate HIGH-PRESSURE PUMPING ENGINE, of 80-horse power (by Hawks), nearly new.
A capital HIGH-PRESSURE WINDING ENGINE, of 34-horse power (by Hopper), new.
An excellent HIGH-PRESSURE WINDING ENGINE, 16-horse power (by Abbot), new.
THREE CYLINDRICAL BOILERS, 30 feet by 6 feet.
Two 16-inch set of pumps, with spears and spear plates, main and tail crabs, gins, ground spears, ground blocks, main & ground crab ropes, 4 coal screens, shaft frames and pulleys, sheer legs, 4 coal screens, NUT COAL APPARATUS, headstead, conductors, cages, and keeps, COAL DROP, for loading keels (nearly new), several lots of COAL TUBS, for keels,
FIFTY-EIGHT WOOD AND IRON COAL WAGGONS,
Malleable and cast-iron RAILWAY and CHAIRS, crossings and points, underground ditto ditto, coal tubs for underground, flat and round ropes, sleepers, lathe, patterns, deals, timber, smiths' bellows, vices, anvil, tools, nails, joiners' benches, FOUR CARTS, trapping, agricultural implements, an excellent horse for colliery or farm purposes, FOUR COUP CARTS, various agricultural implements, new and old iron and metal, old rope, and a large quantity of other miscellaneous articles and colliery stock.

Catalogues may be had on and after the 17th inst., at the office of the auctioneer.
Sale to commence at Ten o'clock precisely.

The Penshaw and Washington Stations are within 20 minutes' walk of the colliery.

(From Bradshaw's *Guide for September*.)

WASHINGTON STATION, ON THE YORK, NEWCASTLE, AND BERWICK RAILWAY.

Arrival of the Up Trains.		
6.0	8.40	11.30 A.M.
2.43	6.28	8.28 P.M.
Arrival of the Down Trains.		
9.5	12.30	3.25 A.M.
5.29	7.56	8.23 P.M.

PENSHER STATION.

Arrival of the Up Trains.		
6·5	11.35	— A.M.
2.47	6.32	8·33 P.M.
Arrival of the Down Trains.		
9.0	—	— A.M.
12.25	5.24	7.52 / 8.17 P.M.

Bridge-street, Sunderland, Sept. 6, 1849.

WHITWELL COLLIERY.

MR. W. I. BARKER will PEREMPTORILY SELL, BY AUCTION, on Tuesday, October 16, 1849, at Twelve o'clock at noon, for One precisely, at the George Inn, Pilgrim-street, NEWCASTLE-UPON-TYNE, 4

THIRTY-EIGHT (64ths) SHARES

(late of Messrs. Andrew White and Richard White) of and in the well-known current-going and most excellent colliery, called the WHITWELL COLLIERY, situate at WHITWELL, in the county of DURHAM, comprising a royalty of upwards of 635 acres, or thereabouts, of coal of first-rate quality, there being two seams opened out—the Hutton Seam and Low Main Seam, worked by two pits, and with pitmen's houses, workshops, engines, machinery, and all necessary stock and conveniences for carrying on the colliery on an extensive scale.

The colliery is situate adjoining to and communicating with the main line of the York, Newcastle, and Berwick Railway (the Durham and Sunderland Branch whereof is constructed to the bank ready), and the coal can be shipped either at the ports of Sunderland or Hartlepool, or on the River Tyne. The convenient situation, high reputation of the coal, and many other advantages of this colliery, afford an excellent opportunity for any one desirous of an investment in a colliery, and the purchaser of these shares will be entitled to the acting direction and management of the undertaking.

The colliery may be viewed on application to Mr. Robson, Whitwell Grange, near Durham; and further particulars known on application to Messrs. J. J. and G. W. Wright, solicitors, Sunderland.—Sunderland, August 30, 1849.

MINE MATERIALS.

MR. GEO. TRICKETT, Jun., will SELL, BY AUCTION, at the LODDISWELL MINE, near KINGSBRIDGE, DEVON, on Wednesday, the 10th day of October next, at Eleven o'clock in the forenoon, the undermentioned 5

MINING MATERIALS—viz:

An excellent WATER-WHEEL, 18 feet diameter, and 12 feet breast, with two cranks, &c., complete; about 350 fathoms of wood rods, 7 by 5 inches, with plates and bolts, 300 fathoms of iron rods, 2 and 1¾-inch round, 1 main and 3 balance-bobs, capstan and shears, about 70 fathoms whim-rope, 1 whim, and about 70 fathoms of ¾-inch chain.

5	9-feet 9-inch pumps,	1	9-feet 8-inch working barrel,
6	9-feet 7-inch ditto,	1	9-feet 6-inch ditto,
10	fathoms of 4-inch pumps,	1	9-feet 3¾-inch ditto,

with windbores, doorpieces, boxes, &c., to suit the above; and also a quantity of bucket-rods, 1 40-inch smith's bellows, anvil and vice; a quantity of new and old iron, new tackle rope, a quantity of useful timber, roofs of houses, ladders, &c.

The mine is situated about 5 miles from Kingsbridge, whence any part of the materials may be shipped; and they may be viewed by application to John King, on the mine.

TO BE DISPOSED OF, the MANUFACTURING PREMISES, BUSINESS, and CONNECTION (which is of a first-rate character), of a well established MACHINERY GREASE MAKER. 6

Also, several PATENT RIGHTS, FREEHOLD ESTATES, LEASES of FOUNDRIES and ENGINEERING WORKS, FREESTONE QUARRY, and COAL and IRONSTONE MINES; SHARES in a well-known SLATE QUARRY, the PART, or the WHOLE, of a well-established GAS WORK, & STEAM-ENGINES and MACHINERY of all descriptions.

For particulars apply to James Boydell, land, mine, and machinery valuer, and agent, No. 54, Threadneedle-street, London.

TREBOROUGH SLATE QUARRY, near the ports of WATCHET and MINEHEAD, on the Bristol Channel, TO BE LET, BY TENDER, for a term, from Michaelmas, 1849.—This Quarry is approached by good roads, and supplies a very extensive district, comprising numerous large and important towns. The Slate is celebrated for its hardness and durability, and is equal in quality to any Cornish or Welsh Slate. It is inexhaustible, and has been profitably worked for upwards of a century. A tunnel is opened, and a tram-road laid down, which serve to drain the quarry effectually, and to remove the deads and land the slate. There are Sawing, Planing, and Polishing Machines, for converting the slate; the whole worked by a new and powerful water-wheel, amply supplied with water. 7

Mr. Babbage, at Nettlecombe-court, near Taunton, will show the quarry, and give every information relative to it.

Tenders, in writing, to be delivered on or before the 27th day of September, 1849, to Messrs. Roweliffe and Son, solicitors, Stogumber, near Taunton.

COAL.—TO BE SOLD, OR LET, either in one or more lots, all that valuable VEIN of COAL, commonly called the UPPER MOUNTAIN MINE, extending over about 1000 acres—situate in the township of GREAT HARWOOD, in the county of Lancaster. The mine has been recently proved, and found, at 77 yards from the surface, to be 5 feet in thickness, and of an excellent quality. The above property is within a short distance of the Leeds and Liverpool Canal, and in the midst of a populous and large manufacturing district. 8

A section of the borings may be seen by applying to Mr. Boosie, Rufford Hall, Ormskirk; or to Mr. Whittle, Charnock Richard, Chorley—to either of whom proposals may be sent.

DEVON.—HENNOCK IRON, STEEL, AND TIN MINING COMPANY.
ON THE COST-BOOK PRINCIPLE.

Bankers—Devon and Cornwall Bank, Exeter and Newton Abbott. 9

Solicitors—Messrs. Kennaway and Buckingham, Exeter.

Capital £9450, in 4500 shares, at £2 2s. each, without further calls or liability.
Deposit £1 1s. per share.

The promoters of this company propose to raise the above capital to work efficiently these very valuable mines of micaceous iron and tin ore, situate in the parish of Hennock, 12 miles west of Exeter, and 2 from Bovey Tracey, on the confines of Dartmoor.

These mines are not a new discovery, but possess the advantage of having had their merits tested to an extent that fully establishes their great capabilities, and warrants the expectation of a large trade at a highly remunerating profit.

Prospectuses and particulars supplied on application (if by letter, post-paid) to Mr. Tripp, Bedford Chambers, and of Mr. T. Sanford, Exeter; Mr. H. Luscombe, Plymouth; Mr. B. S. Stock, Bristol; Mr. C. P. Cameron, Liverpool; Mr. J. Lane, 80, Old Broad-street, Mr. Herron, 33, Clements-lane, and at the office of the *Mining Journal*, No. 26, Fleet-street, London.

INDURATED AND IMPERVIOUS STONE, CHALK —AGENTS, with capital, are WANTED in all TOWNS to SUPPLY ([illegible] and Foreign Patents) the great demand for HUTCHISONISED MATERIALS, hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large. Apply to HUTCHISON & CO. 10

140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c.
LICENCES GRANTED.

PURSUANT to an ORDER of the HIGH COURT of CHANCERY, made in a cause WARNER v. THE GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND and OTHERS, all PERSONS who were CREDITORS of the said GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND on the 10th day of April, 1848, and on the 3d day of November, 1848, being the dates of the Trust Deeds in the pleadings of the said cause mentioned, and who have not already signed the said deeds, are forthwith to come in before Richard Torin Kinderley, Esq., one of the Masters of the said Court, at his Chambers, in Southampton-buildings, Chancery-lane, London, and SIGN the said DEEDS and PROVE their DEBTS; and also the CREDITORS of the said company, who have already signed the said deeds, are forthwith to come in before the said Master and PROVE their DEBTS; or, in default thereof, they will be excluded the benefit of the said order.—Sept. 19, 1849. 11

ARTHUR DIGBY.
1, Circus-place, Finsbury-circus, Plaintiff's Solicitor.
TILSON, SQUANCE, CLARKE, & MORICE,
29, Coleman-street, London, Defendants' Solicitors.

WATER-SIDE PREMISES, contiguous to the WEST INDIA DOCKS.—TO BE LET (or the unexpired Lease of 29 years to be sold) a large and commodious WHARF, 120 feet river frontage, and upwards of 250 feet deep, with heavy draught of water, and a powerful crane, with front and back entrance.

TWO capital RESIDENCES, STABLES, and OTHER BUILDINGS, suitable for bonding-yard, saw-mill, iron, stone, timber, or any other extensive trade. 12

For particulars apply to Mr. W. C. Kettle, 5, Ebenezer-terrace, Millwall, Poplar.

TO BE SOLD, BY PRIVATE CONTRACT, a LEASE, for 21 years, of a LEAD MINE, in CARNARVONSHIRE, within 1½ mile of a shipping port.—Every information may be had by applying (by letter, post-paid) to Thomas Richardson, South Penrallt, Carnarvonshire. 13

SECOND-HAND ENGINE REQUIRED.—WANTED IMMEDIATELY, a SECOND-HAND PUMPING ENGINE, of from 40 to 80-horse power, for the purpose of fixing at a colliery in Glamorganshire.—Offers, stating full particulars, price, and locality, will be received until the 27th inst., addressed to "A. B." care of J. P. St. Aubyn, Esq., 5, Furnival's Inn, London. 14

WANTED TO PURCHASE—SHARES in South Frances, North Roskear, Trelawny, Trehane, South Basset, Devon Great Consols, Treviskey, Tincroft, Bedford, Stray Park and Camborne Vean, East Buller, and Cook's Kitchen Mines.—Apply to Messrs. Watson and Cuell, Mining Offices, No. 1, St. Michael's-alley, Cornhill, London. 15

N.B.—Messrs. W. & C. are always in a position to treat for the Sale or Purchase of Shares in all the best dividend Mines in Cornwall, Devon, and Wales.

MINING PROPERTY.—Mr. JAMES HERRON, MINE AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE of SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17½ to 25 per cent. upon his outlay. He is also in a position to transact business in the following—viz. Trelawny, Tincroft, Great Devon Consols, Treleighs, East Buller, Stray Park, East Wheal Rose, Lewis, Condurrow, East Pool, Imperial Brazilian, St. John del Rey, South Tolgus, Gonomena, West Caradon, Alton, East Crowndale, Treviskey, and Tresavean Mines. 16

MR. HENRY VATCHER, MINING AND RAILWAY SHAREBROKER, EXETER.
Competent and experienced AGENTS provided to INSPECT MINES, at the shortest notice. 17

MR. R. TRIPP, MINING AGENT and SHAREBROKER,
BEDFORD CHAMBERS, BAMPFYLDE-STREET, EXETER. 18

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR,
No. 15, OLD BROAD-STREET, CITY. 19

JAMES LANE, MINING SHARE DEALER,
80, OLD BROAD-STREET, LONDON. 20

ASTURIAN MINING COMPANY.—The REPORT of the COMMITTEE of INVESTIGATION, appointed the 30th August last, will be READY FOR DISTRIBUTION on the 24th Sept. inst.—Proprietors applying will receive a copy.—9, Austinfriars, Sept. 21, 1849. 21

ASTURIAN MINING COMPANY.—Notice is hereby given, that the ADJOURNMENT of the ANNUAL GENERAL MEETING, from the 30th day of August last, will be HELD on Tuesday, the 25th day of Sept. inst., at the company's offices, No. 9, Austinfriars, London, for the purpose of receiving the Report of the Committee of Investigation, and transacting other business.—The chair will be taken at One o'clock precisely. 22

Also, that a SPECIAL GENERAL MEETING of the shareholders will be held immediately after the conclusion of the business of the said adjourned meeting, on the said day, and at the same place, to take into consideration the statement of the Committee of Investigation relative to the present position of the company, and the steps necessary to be taken in consequence. Also, to take into consideration the proposition which has been received from Messrs. Munoz and Grimaldi; also, to sanction the appointment of liquidators, to be authorised to refer disputed questions to arbitration, and make arrangements for holding the next general meeting of shareholders.

By order of the board, K. MACKENZIE, Secretary.
Offices of the company, 9, Austinfriars, London, Sept. 7, 1849.

BOLANOS MINING COMPANY.—NOTICE TO SCRIPSHAREHOLDERS.—A SPECIAL GENERAL COURT of proprietors of this company will be HELD at the London Tavern on Wednesday, 26th inst., at One o'clock precisely, to pass resolutions for raising a capital to work the mine of El Bote, by the issue of new shares, or in such other way as may then be determined upon; or if such court shall so decide, to come to a resolution to dissolve the company. 23

London, Sept. 21, 1849. JOHN HEAD, Secretary.

CAMBORNE CONSOLS MINING COMPANY—NOTICE OF CALL.—Notice is hereby given, that the directors have this day resolved that the subscribers, or shareholders, in this company PAY, and they are hereby required to pay, on or before the 25th day of Sept. next, into the bank of Messrs. Praed and Co., 189, Fleet-street, London, a CALL of ONE POUND upon each and every share held by them in this company, and that, pursuant to article 116 of the company's Deed of Settlement, all and every share, or shares, upon which the said call of £1 per share shall not be paid within 14 days after becoming due, will be subject to absolute forfeiture. 24

By order of the board of directors, H. L. T. VON USTER, Sec.
London, August 23, 1849.

GUADALCANAL SILVER MINING ASSOCIATION.—Notice is hereby given, that all SHAREHOLDERS desirous of taking the PROPORTION of the NEW ISSUE of SHARES to which they are entitled by the resolutions of the Special General Meeting, held on the 12th inst., must declare such intention by PAYING the FIRST INSTALMENT of TEN SHILLINGS per share, on or before the 28th of Sept. inst., at the offices of the association, otherwise all their interest in and title to the above issue of shares will be absolutely forfeited. By order, 25

34, Broad-street-buildings, London, Sept. 19, 1849. H. T. RYDE, Secretary.

TAMAR SILVER-LEAD MINING COMPANY.—Notice is hereby given, that the ANNUAL GENERAL MEETING of the shareholders of this company will be HELD at Salvador House, Bishopsgate-street, on Thursday, the 11th day of October next, at Two o'clock precisely.—London, Sept. 13, 1849. 26

TRELEIGH CONSOLIDATED MINING COMPANY.—Notice is hereby given, that the ANNUAL GENERAL MEETING of the shareholders will be HELD at the offices, as under, on Wednesday, the 3d of October next, at Twelve for One o'clock precisely. WM. NICHOLSON, Secretary. 27

57, Old Broad-street, Sept. 18, 1849.

DUISBURG IRON-WORKS AND MINES,
IN WESTPHALIA, CLOSE TO THE RHINE.

Managed in England according to the principles of the "Cost-book System," and in Prussia as a *Société in Commandite*, under laws limiting the liability of the shareholders to their personal subscription. 28

Company's Offices, 28, Moorgate-street, City.

BICKFORD'S PATENT SAFETY FUSE.—The Patentees of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants, Mine Agents, Railway Contractors, and all persons concerned in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT FUSE *has now a thread wrought into its centre*, which being patent right, instantly distinguishes *it from all imitations*, and ensures the continuity of the gunpowder. The Safety Fuse is now protected by a Second Patent, and manufactured by greatly improved machinery. BICKFORD, SMITH, & DAVEY, Camborne, Cornwall. 29

WIRE ROPE.—The Undersigned beg to inform the public, that they have become SOLE LICENSEES of Mr. ANDREW SMITH, for the MANUFACTURE and SALE of his PATENT WIRE ROPE; and having fitted their premises with his very superior improved machinery, have only to assure those who may favour them with their orders, that the same care and attention shall always be bestowed which, they have reason to believe, has secured them such general support.

LIGHTNING CONDUCTORS, SIGNAL CORD, and SASH LINE, always in stock. 30

WILKINS & WEATHERLY.
Patent Wire Rope Works, No. 30, High-street, Wapping, London.

LITERARY NOTICES.

A Guide to Port Stephens, in New South Wales, the Colony of the Australian Agricultural Company. By ALEXANDER HARRIS. London: W. S. Orr and Co., Amen-corner, Paternoster-row.

The Australian Agricultural Company, who were first incorporated in the year 1824, having for the last 20 years confined their operations to cultivating and grazing estates, which were selected with great care in the immense continent of New South Wales, have determined on offering for sale, or lease, all that portion, containing 500,000 acres, situated near Port Stephens, and about 100 miles from Sydney. This estate is bounded by the River Manning intersected by other streams, and provided with roads and bridges, which have been constructed by the company at a great cost. Mr. Harris, conceiving that the Australian Agricultural Company having determined to sell, or lease, their large estate at Port Stephens, on terms that possibly will bid many small capitalists to emigrate, thinks that a guide-book has become necessary. To make the book complete and serviceable to all, the case of the largest and the smallest capitalists are included in its instructions so as to furnish all necessary information in as definite and clear a form as possible, from the lowest capitalists, who ought to be advised to emigrate as such, up to the highest.

With the views of the Australian Agricultural Company we have nothing to do; their affairs within the colony were for many years conducted by Sir Edward Parry, the North Polè explorer, and a great portion of the land was selected by that indefatigable discoverer. Mr. Harris, in the little work he has given to the public, presents no inflated picture to the emigrant of sudden prosperity, or plethoric wealth, but he shows how, with small capital and great industry, the diligent man may progress in his new country. The work is written in a clear wholesome style, fit for the comprehension of the class of people for whom it is intended. Several of the descriptions are highly graphic, and can be perused with interest by those remaining in the mother country. Mr. Harris's little book is a complete guide for the emigrant, not only to Port Stephens, but the other parts of the colony; he selects, however, this one as being free from the absurd and vexatious regulations of that incubus of progress, the incompetent *Colonial-office*.

The emigrant going here finds, in the climate, the capacity of the soil, and the proximity to the capital and the sea, a never-failing market, the total of which can nowhere else be found combined. No far distant interior has to be sought by a toilsome and perilous journey inland; no vast track is placed before the emigrant to perplex him in his choice; there is no danger of his sitting down within reach of the vapours of pestilential swamps. His task is definite, confined, and safe. Civilisation has preceded him to the very ground he is to occupy a quarter of a century since, and he obtains his location at about half the ratio of a distant interior settlement, derived through the regulations on the remaining crown lands of the colony. Appended to the work are statistical tables of the exports and imports of the colony, with much other useful information; and the work, we have no doubt, will be perused both by the intending emigrant, and the friends of those who have already settled in Australian localities.

BALLYCASTLE COALS.—This article of native produce, the rising of which has been recommenced with considerable spirit, is occasionally imported into Belfast, and sells readily at the low prices at which the pit-masters can afford to dispose of it. It suits well even for household use; and we hope that it will soon be found in regular and abundant supply at our quays.—*Banner of Ulster.*

ON NERVOUS DEBILITY AND GENERATIVE DISEASES.

Just published, the fortieth thousand, an improved edition, revised and corrected, 120 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Author, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS, consulting surgeon, 15, Albermarle-street, Piccadilly, London.

REVIEWS OF THE WORK.

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, *On Manhood, and the Causes of its Premature Decline; with Plain Directions for its Perfect Restoration.*—[Strange, Paternoster-row.]—This is a book replete with valuable advice and information. It developes the fearful shoals on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine.*

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Era.*

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle.*

Published by the author, and may be had at his residence; sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester: Howell, 16, Church-street, Liverpool; Robinson, 11, Greenside-street, Edinburgh; Campbell, chemist, 146, Argyle-street, Glasgow; Berry and Co., Capel-street, Dublin; and by all booksellers.

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THE SILENT FRIEND: a medical work, on the infirmities and decay of the generative system, from excessive indulgence, infection, and the inordinate use of mercury, with remarks on marriage, and the means of obviating certain disqualifications, illustrated by 26 coloured engravings. By R. & L. PERRY & Co., consulting surgeons, 19, Berners-street, Oxford-street, London. Published by the authors; sold by Strange, 21, Paternoster-row; Hannay, 63, and Sanger, 150, Oxford-street; Starie, 33, Titchborne-street, Haymarket; and Gordon 146, Leadenhall-street. 32

PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. This section is illustrated by 17 coloured engravings.—PART THE FOURTH contains a prescription for the prevention of disease by a simple application, by which the danger of infection is obviated. This important part of the work should not escape the reader's notice.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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BY SAMUEL LA'MERT, M.D., 37, BEDFORD-SQUARE, LONDON. 33

Doctor of Medicine, Matriculated Member of the University of Edinburgh, Licentiate of Apothecaries' Hall, London, Honorary Member of the London Hospital Medical Society, &c.

REVIEWS OF THE WORK.

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Transactions of the British Association.

DISTRIBUTION OF [illegible] THE SURFACE OF THE GLOBE.—Sir R. I. MURCHISON drew attention to the distribution of gold over the surface of the globe, and a comparison between the auriferous products of the Ural Mountains and California." Sir Roderick stated that, this subject having excited considerable interest, he took occasion to bring it before them—not only to develope his own views and those of other authors, but also to elicit by discussion the knowledge of the geologists, mineralogists, miners, and statists, who might be present. An enlarged Mercator's projection of the world was exhibited, on which all the leading ridges which had afforded gold ore, in times past or present, were marked. Referring to the works of Humboldt and Rose on the Ural Mountains, as well as to those of Helmersen and Hoffman—the former of whom some time ago made a map of all the gold tracts of Siberia, and also citing the numerous contributions of M. Adolf Erman, and particularly the last—Sir Roderick gave a condensed view of his own observations in the gold regions of the Ural Mountains. This exploration of that chain, with his associates, M. de Verneuil and Keyserling, had led him to form the opinion, that gold veins had generally been produced wherever certain rocks of intrusive character—namely, greenstones, porphyries, sienites, granites, and serpentines—had been intruded through palæozic rocks, particularly as affected the Ural among those of the Silurian epoch. It was, in short, where clay-slates, limestones, and grauwacke sandstones had been penetrated by such igneous rocks, that quartz veins abounded, and with them a diffusion of gold ore in grains, leaf, and veins. To the general view of Baron Von Humboldt, that the richest gold deposits were those which were derived from ridges having a meridian direction, M. Adolf Erman was decidedly opposed; but Sir Roderick was of opinion that, although they might be unable to explain the cause, it was a fact that the greatest quantity of gold ore had been obtained from chains having a nearer relation to north and south than to equatorial, or east and west directions—due, perhaps, to the general form of the chief masses of land, and the prevailing strike of the palæozic rocks. He thought, however, that these terms, meridian or equatorial, were used in the more general terms employed by miners. He next pointed out the error into which some persons had fallen, of supposing that the Uralian mines were worked underground—the only small subterranean work there yielding a very slight profit. All the other mines there were simply diggings and washings, which were made in the detritus, or shingle, accumulated on the slopes of the ridges and in the adjacent valleys, and, with one exception, were all upon the east side. This phenomenon in the Ural Mountains was a necessary result of their structure. Exhibiting maps and sections, and views of the Ural Mountains, and referring to the description of California by Erman and others, he entered upon a comparison between the two countries, and showed that there was a very great coincidence of mineralogical structure; and that with these "constants" the same results obtained in America as in the Ural. He contended, however, against the inference that any large tract of California would be found to be as uniformly auriferous as the banks and slopes of the upper tributaries of the Sacramento. The breadth of the auriferous detritus of California had yet to be ascertained. As, however, the lower or coast ridge, which passed by San Francisco, seemed to be in miniature, what the higher parallel mountains were upon a larger scale, in being composed of greenstones, porphyries, grauwacke, sandstones, and quartz rocks, it was probable that very much of the great intervening valley of the Sacramento might be strewed over at intervals with auriferous *debris*. He glanced at the various modes of procuring gold; and, adverting to the fact that in the Ural Mountains the veinstones, *in situ*—in this case little or no admixture with other ore existed—had proved very slightly remunerative when worked further downwards; he remarked on the view of Humboldt, who, looking to the great lumps, or "pepites," occasionally found in the surface rubbish, supposed that there might have been some connection between the production of gold and the atmosphere, since, judging from these specimens, it was from the superficial extremities of these quartz veins that the richest branches of gold must have been derived—the veinstones when followed downwards, having usually proved unproductive. Notwithstanding that there were cases, chiefly on a small scale, as in Hungary, where gold ore continued to ramify in veinstones of great depths, yet it was a statistical fact that all the great masses of gold ore had been, and were, derived from superficial rubbish. The major part of detritus he carefully distinguished from modern alluvia. The existing rivers had little more to do with the phenomenon than that they had, by terrestrial action, occasionally laid bare the edge of the previously-formed gold accumulations. He did not deny, however, that where streams flowed directly from rocks, *in situ*, which were impregnated with gold, that auriferous detritus would be the natural result. Sir Roderick then traced the history of gold and its development, as known to the ancients and our ancestors of the middle ages. He glanced at the operations of gold-finding in Wales, in Scotland, and Ireland, which had at one time been worked, and were now abandoned. The Scythian tract had remained unknown till this century. The Russians were similarly ignorant till the same recent period. These Russian mines that formerly afforded 500,000*l.* sterling annually, now yielded nearly 4,000,000*l.* As for California, he speculated that, judging analogously, it would only be in certain patches that very great wealth would be discovered; and that it would be hasty to conclude that, because gold detritus had been discovered near the sources of the Sacramento, that all the intermediate tract should be equally productive. The California discovery was not likely to produce any change in the standard. He then shortly adverted to the discovery of gold in Australia. In support of his general views, he called forth the evidence of Professor Rogers, of Philadelphia.—The PRESIDENT agreed with the general opinion of Sir R. Murchison; but he thought that, as geologists, they should receive with caution the opinion that gold was more abundant on the surface than at great depths; neither should they take it for granted that the gold-bearing mountains had a bearing from north to south rather than from east to west—as in California, for example, they differed somewhat from the position laid down, and the Pyrenees differed completely.—Prof. ROGERS remarked, that he had invariably in his researches found gold was generally obtained with more facility by washing the alluvium in the beds, or along the banks of rivers; but these superficial deposits were in general speedily worked out. He did not think that it was at all probable that mining in the solid vein rocks would ever be profitable, not only from the great expense of penetrating for it, but also from the difficulty in separating it from the sulphates of iron, copper, and sometimes lead. He agreed generally in the opinion, that gold was always found in peculiar combinations of strata, and he also thought that the deposits found in the alluvium were merely superficial. The regions in which gold was to be found were much more extensive than was generally imagined. He considered that the whole regions extended from Lower Canada down to the central part of Georgia, a distance of more than 1000 miles, throughout which the gold quarry rocks, or auriferous deposits, have been discovered. He thought that the superficial deposits of gold found in these regions and in California would, after the lapse of a few years, be exhausted; and as he conceived that the surface gold was greater in quantity than in veins, there was little fear that more would be obtained than was simply necessary for the purposes of society.—Prof. SEDGWICK thought that the condition might be constant, but the age would not be so; but he could not believe, for a hundred different reasons, that gold was more plentiful on the top of veins than in the veins themselves; and, lastly, he could not agree that the gold mountains ran from north to south.—Sir H. DE LA BECHE agreed with Prof. Sedgwick, that the gold was not found, as had been stated by Sir R. Murchison, in the older palæozoic rocks, and that it depended more on mineral and physical conditions rather than on age, inasmuch as metals (and why not gold?) had been found in formation equal to the coal measures. His reason for supposing that gold was not confined to the tops of the veins was, that conditions being the same, the same results would follow.—Sir R. MURCHISON then replied, showing that the theories of those who differed with him with regard to the greater abundance of gold at the surface than in the veins, differed with every practical man on the subject; and they differed also in regard to the fact, that the hill ranges were from north to south more than to the equatorial line. This was so in all cases in which large quantities of gold were found, although some modification might be necessary as related to small quantities.—Mr. DARWIN stated an instance in which that had occurred.

ON A METHOD OF SUPPLYING THE BOILERS OF STEAM-ENGINES WITH WATER, by Mr. W. S. WARD.—Mr. Ward's suggestion was to use a small supplementary pumping engine, having a working cylinder with valves so arranged that the piston may be put in motion by either steam or water passing through it, to be supplied with steam, by a steam pipe, the entance to which is somewhat narrow, and inserted in the boiler to be supplied a little above the level at which it is desired to maintain the water therein. Such aperture should also be about the centre of a marine boiler. The working cylinder should be attached to a pump of such size as to be easily worked by the pressure of the steam. The exit pipe of the steam cylinder must communicate with the inlet pipe of the pump, so that if the cylinder be actuated by steam, the steam will be condensed, and its heat communicated to the water to be supplied to the boiler; or if the working cylinder be worked by water proceeding from the boiler, a considerable part of such hot water will be returned by the pump. The mode of operation of such apparatus apparatus will be, that whenever there is a working pressure of steam in the boiler, the apparatus will be in action; but if the level of the water be below the aperture of the small steam pipe, the action will be moderately rapid, and a supply of water be pumped into the boiler; and when the water in the boiler rises to the aperture, this being small, will be as though choked by the water, which will be forced through the working cylinder, moving the piston and pump very slowly; a portion of the water thus escaping from the boiler will be returned by the pump. Such last-mentioned action cannot continue long, inasmuch as the the level of the water must be reduced; therefore the average level of the water in the boiler will be, with slight oscillations, maintained at the height of the supply pipe. In the course of a brief discussion which followed, the President said that it was a new and ingenious idea, but one which he was afraid was not practically useful.

THE ELECTRIC TELEGRAPH.—Mr. WHISHAW delivered an address on the present state of telegraphic communication in England, Prussia, and America, from which it appears that the cost of telegraphic lines in England is 150*l.*, in America 80*l.*, and in Prussia under 40*l.* per mile. The telegraph in Prussia consists of one wire, extending over 1296 miles, is under ground, covered with gutta percha, and affording many advantages over the present lines in England. The instruments used in Prussia are Morse's, Siemens', and Kramer's. Morse's is capable of transmitting 1000 words in an hour. In America there are upwards of 10,000 miles of telegraphic line, all worked in a cheap manner. In England there were only 2000 miles in operation, and the cost of transmission by it, as yet, was much higher than in other countries. In this country the wires were exposed to the atmosphere, and the effect injurious. If the wires were placed under ground, it would be much more difficult to destroy them. In the late revolutionary movements in Prussia, the telegraphs above ground were cut away 20 times, while those under ground escaped untouched. Relative to the American telegraph he should say nothing additional, as there was a gentleman of eminence present, well acquainted with that country, who would give them some valuable information upon the subject: the gentleman to whom he alluded was Mr. Flanagan.—Mr. FLANAGAN then said there was one observation of Mr. Whishaw's, in introducing him to the meeting as a learned man, which he begged leave to correct. He was a plain working farmer, residing on his own plantation, near the line of telegraph extending from New York to St. Louis, and he could add little to the information so clearly and accurately given by Mr. Whishaw. The simplicity and expedition with which the American telegraphs were constructed must astonish the Old World. Locust, or laburnum, poles, 20 feet long, were cut in the woods by the different farmers along the line, and placed by them at their several stations. Holes were made, 3 feet 6 inches deep, the poles were set—glass insulators being used instead of earthenware. Within 3 inches of the top the wire extended, and in a few days, at a comparatively trifling expense, whole lines were formed—the repairs of the post and wires being entrusted to the farmers living at intervals of 15 miles along the lines, who were furnished with a few tools to effect the repairs; the farmer had for his reward the privilege of making his communications by the telegraph free. The lines were generally carried along the sides of the mail rows throughout the country, and it was astonishing the little amount of repairs annually necessary, either to the wires or posts. They had no instance of malicious injury being done to either throughout the country; in fact, each farmer along the whole line, who had supplied materials or labour for its erection, became a shareholder to the extent, at least, of the amount of the labour and materials he had furnished, and thereby gave the residents along the line an interest in its safety.

ON CHAIN PIPES FOR SUB-AQUEOUS TELEGRAPHS, by Mr. WHISHAW.—Three links of a full sized pipe for enclosing the wires of electric telegraphs in crossing rivers, &c, were laid before the section. As the title implies, the pipe is formed by so many links, connected together by sockets—each link varies, according to circumstances, from 18 inches to 24 inches in length, and from 1 inch to 2½ inches internal diameter, according to the number of wires to be inclosed. These pipes, being of wrought iron, are exceedingly strong, and are required merely as a protection to the wires, which are previously insulated by means of gutta percha. Pipes of somewhat similar construction are laid under the Rhine, and other rivers in Prussia, where the undergrouud system of telegraphs is adopted by the Prussian Government, already to the extent of 1200 miles, although many of the railway companies suspend the wires between the posts, as practised in England, America, France, &c. The discussion which followed was brief; its purport was to signify approbation of the invention.

ON THE APPLICATION OF MECHANICAL SCIENCE TO RAILWAYS, by Prof. WILLIS.—In commencing his discourse, the rev. gent. said, that the title set down for his lecture was too comprehensive, for he only intended to give them an application of mechanical science to railways. They would recollect that, some time ago, a commission, of which he had the honour to be a member, was appointed by Government to inquire into the application of iron to railways; and though he was not about to detail to them all the labours of that commission, he would give them some account of the results of a portion of its researches They had found it necessary to ascertain the effect which the passage of loads over iron railway bridges had in deflecting them. They had clearly ascertained the character of the effect a railway engine and tender would have upon an iron bridge when in a state of rest, but they did not know whether, when the train was in a state of motion, the deflection would be greater or less. For the purpose of determining this interesting and most important question, a temporary railroad, the bridge being represented by two iron bars, had been constructed in Portsmouth Dockyard, and so arranged that, by means of an inclined plane, any required degree of velocity could be attained by the carriage with which the experiments were conducted. With this apparatus an interesting series of experiments were made, the weight of the loads being varied; and the uniform result was that the statical deflection—*i. e.*, the deflection caused by the carriage when at rest on the centre of the bars—was three or four times less than the deflection caused when the carriage was in a state of motion. The apparatus which he exhibited to them that evening, was on a much smaller scale than the Portsmouth one; for whilst the latter enabled them to pass a weight of from 3 to 4 tons over the bridge, the former only carried a weight of as many pounds. As the object of the experimental philosopher was to eliminate all obstructing causes, they must begin their experiments on a small scale; so that it was necessary to employ a smaller apparatus, and also to obtain a different material to cast-iron, and a material, too, that would give, by its greater delicacy of texture, closer results, and that would not display the curious phenomenon of "set." He had, therefore, in his more recent experiments, used bars of cast-steel; and in order to do away with any irregular pressure of the carriage—for in the deflection they sometimes found more pressure on the one bar than the other—he had used one bar instead of two. The reverend professor here proceeded to give a minute description of the apparatus, which consisted of a railway, between 20 and 30 feet long, formed of deal planking, and having at one end an inclined plane, with an altitude of about 20 ft. Upon this plane, a moveable break was fixed, so as to hold the carriage at any required height, and to ensure accuracy in the starting point. The centre of the line of rail was occupied by the bridge, and the extreme end opposite the incline was so made as to open slightly outwards, so that springs fixed on either side the carriage might clasp the sides of the line, and retard further motion, thus preventing the carriage from running off the line after passing the bridge. The carriage employed was merely a small model of a luggage waggon, the flanges of the wheels being made outwards instead of inwards, so as to clip the line along which they passed. A long and interesting series of experiments was here performed, the velocity of the motion being considerably varied, the result invariably being that the deflection of the bar was, during the motion of the carriage, triple the extent of the deflection caused whilst the carriage merely rested upon the bar. Mr. Willis now proceeded to observe, that the weight of railway bridges was generally much greater than that of any load that passed over them, whilst his bar was much lighter than the load that had so greatly deflected it. An ingenious contrivance for strengthening the bar, by increasing the weight to be deflected with it, was then resorted to, which showed that the increase in the weight of the bridge had diminished the deflection, although, the professor observed, that to take this as a general principle would be wrong, for there were cases in which an increase in the weight of the bridge actually increased rather than diminished the deflection. He was, however, happy to say that the very serious facts connected with the deflection of iron railway bridges, the results of which he had that evening attempted to develope, did not exist in practice to so great an extent as in theory; and, indeed, they found that the deflection was in practice so slight, that it might be almost altogether neglected. This fact the commission had established by actual experiments upon a bridge on a railway in Surrey. In conclusion, he might observe that some experiments had been made at Portsmouth as to the advantages to be derived from curving bars upwards, which certainly diminished the centrifugal force, and, consequently, lessened the deflection, but no practical results were elicited.

ON AN ECCENTRIC GUAGE FOR WIRE, SHEET METAL, &c., by Mr. ROBERTS.—This invention consists of a plate of brass about 4½ inches diameter, and ¼ of an inch in thickness, is recessed on the upper side to the depth of ⅛ of an inch, and diameter of 4 inches, leaving a margin five-sixteenths of an inch broad. In the centre of the recess is a hole into which is fitted a steel pivot, whose upper end is rivetted into a steel disc 38 inches diameter, and one-sixteenth of an inch thick; the pivot is eccentric to the disc one-tenth of an inch, and consequently one point in the periphery of the disc touches the inner edge of the brass margin, with which the top of the disc is level. To the under side of the brass plate a small slide is fitted, to the outer end of which a piece of steel is attached, (by screws,) that passes up through a notch in the brass about ¼ an inch, and forms the inner or sliding jaw of the guage; the outer jaw is formed of a similar piece of steel, also passed through the notch in the brass margin, and is fastened to the brass plate by screws. The inner edge of the sliding jaw is rounded to a radius of one sixteenth of an inch, and is kept in contact with the periphery of the eccentric disc by a spring under the disc, which acts against a stud in the slide projecting through the brass plate. The margin of the brass plate is divided through one-fourth of its circumference, commencing at the centre of the sliding jaw, into 75 equal parts, which are numbered decimally. The extremity of the disc is then set at zero on the scale, and the jaws accurately adjusted to touch each other, after which the extremity of the disc is turned to the tenth division, and a line is made in the disc to correspond with zero on the scale, at which point the jaws will be opened a little. The eccentric metal guage possesses the following properties:—Firstly, a corresponding guage may be made without expensive tools from a written description of the means employed to make the original.—Secondly, it admits of accurate construction and easy ad-

adjustment.—Thirdly, each succeeding number being larger than the preceding, in a progressively increasing ratio, adapts the guage equally well for high or low numbers.—Some conversation arose on the principal of measuring and numbering at present pursued. It was stated by Mr. KNIGHT and others that there was no system. That each man adopted the method of numbering which might accidently recur to him.—Prof. WILLIS remarked that the great difficulty was to get every one to adopt this or any other guage as a standard. He considered that the mathematical nicety of the four-inch guage of Mr. Roberts was an objection, for it would be difficult to attain that precision in all guages made for it.

ON THE GENERAL RELATIONS OF THE NEW RED SANDSTONE, THE COAL MEASURES, AND THE SILURIAN ROCKS OF THE SOUTH STAFFORDSHIRE COAL-FIELD, by J. B. JUKES.—The nature and position of the strata concealed beneath the new red sandstone, is a matter of great practical importance as well as geological interest. The new red sandstone extends itself across England without interruption, ranging nearly north-east by south-west, whilst the coal measures and other older strata, possessing a high economic value, are broken and irregular in their distribution. In the centre of England the new red sandstone expands into a great plain, on each side of which are several small detached coal-fields, and three others, appearing like islands, are entirely surrounded by it—viz.: the coal-fields of Leicestershire, Warwickshire, and South Staffordshire. The inquiries of the author have been directed to ascertain whether these coal-fields are bounded by faults, in which case we might expect to find the coal beneath the whole extent of the new red sandstone plane—or whether the boundaries of the coal measures are not rather to be considered as ancient cliffs and slopes caused by denudation, as in this alternative it will become probable that the coal measures were wholly or in great part destroyed and removed from the intervals between the present fields before the deposition of the new red sandstone. The researches of Sir R. Murchison, and more recently of the Geological Survey, have shown that the three groups of stratified rocks in South Staffordshire—viz.: the new red sandstone, coal measures, and Silurian strata—are each unconformable to the other, because, although they have often nearly the same dip, yet the upper beds are found to rest on different portions of the lower strata at different localities. On the western side of the coal-field the Silurian strata, when apparent, consist of the Ludlow rocks, as at Sedgley and the Hayes; in the centre of the field the coal measures rest on the upper part of the Wenlock rocks, as at Dudley and the Wren's Nest; and further east, at Hay Head, a lower limestone appears, which is probably the equivalent of that at Woolhope. On the south of the district the coal measures rest on Silurian shale, and approach the quartz rock of the Lickey—the equivalent of the Caradoc sandstone. This unconformability indicates an uplifting of the Silurian rocks, and considerable denudation previous to the deposition of the coal measures. In the railway cutting near Dudley the horizontal coal shale and sandstone was seen abutting against a small cliff of Silurian rocks, and contained small quartz pebbles, making it look like an old beach. The unconformability of the new red sandstones to the coal measures is of the same nature, and owing to the same cause; at West Bromwich the upper coal measures below the new red sandstone are not more than 120 or 130 yards thick, whilst a mile off it is 190 yards, where there is no new red sandstone; in other parts it is 200 and 300 feet thick, without any new red sandstone. The boundary of the coal-pit on the south-west is a great downcast joint running from Walsall to West Bromwich and Oldbury, gradually increasing in amount to the south, till it becomes 160 yards; this fault brings in the new red sandstone on the east, covering the coal measures, which are worked beneath it at several points; but the coal rests on Silurian shale, which in more than one instance has been found immediately beneath the new red sandstone, with no coal intervening. The western boundary of the coal-field is evidentlh at some points a fault with a very large downcast to the west. Along the southern boundary the coal and new red sandstone have scarcely any perceptible dip, and appear to be conformable; but there was probably an interval between their deposition, since pebbles of coal are found in the bottom beds of the new red sandstone. It thus appears:—1. That the Silurian rocks were upheaved and denuded before the deposition of the coal measures.—2. That there was a movement and denudation of the coal measures, amounting in some localities to their entire destruction and removal, before the deposition of the new red sandstone.—3. That subsequently to the deposition of the new red sandstone, there was a very great movement of all these rocks, producing there present faults and inclined positions.—4. That the boundaries of the South Staffordshire coal-field, as far as examined, present examples of three kinds of relation between the coal measures and new red sandstones—*i. e.* by conformable succession; by fault, the coal measures being present on the downcast side; and thirdly, where the destruction of the coal measure has brought the new red sandstone into immediate contact with the Silurian strata. Whilst, however, there is great hope that the larger part of the new red sandstone plain conceals productive coal measures, there is no probability that these will be found at a depth of less than 500 or 600 yards below the surface.—Sir R. I MURCHISON expressed his belief that at some future time the whole interval between Wolverhampton and Coalbrookdale would be worked for coal.

ON THE IGNEOUS ROCKS OF THE SOUTH STAFFORDSHIRE COAL FIELD, by Mr. S. H. BLACKWELL.—The superficial extent of the igneous rocks in South Staffordshire was first described by Mr. Keir, in Shaw's history of the county; their under-ground development by Mr. Arthur Aikin, afterwards by Mr. Yates, and again by Sir R. I. Murchison in the *Silurian System*; the progress of mining operations has continually added to the information respecting them. The trap rock, known to the miners of this district as the Green Rock, is most extensively exposed in the Rowley Hills, occupying an irregular area of about two miles in length, and half a mile to a mile and a half in breadth; it also appears in small isolated masses at Netherton Hill, Barrow Hill, and Cooper's Bank, to the south of the Rowley Hills, and north of them, at the Heath Colliery, near Wolverhampton, the Neachells, the New Cross near Wednesfield, at Wednesfield itself, and at Pouk Hill, near Walsall. These scattered points of trap rock on the surface would give no idea of its subterranean extent, since it is met with at different depths from the surface, over a great portion of the Wolverhampton coal district. When sunk through by the coal shafts it often appears to be interstratified with and conformable to the coal, and varies much in thickness and position; but as the workings in the coal have become more connected, it has been ascertained that there exists only one continuous bed of underground trap, which has been already traced from a point one mile north of the Rowley Hills to the Errington Brickyard, a distance of nine miles, with a maximum breadth of four miles between Wednesfield and the Birch Hills. The depth of this stratum beneath the surface, at the point nearest the Rowley Hills, amounts to 175 yards, and it becomes gradually deeper to the northward for 2½ miles, where it is 234 yards deep; in this tract it is from 5 to 11 yards thick, and only from 5 to 11 yards above the junction of the coal with the Silurian strata. Further north it rises rapidly towards the surface, crossing the ironstone bands and coal strata, which it sometimes splits, and attaining a thickness of from 80 to 90 yards. At Wednesfield New Colliery it again descends to the depth of 17 yards, with a thickness of 44 yards; at New Cross it again rises to the surface, and continues so up to the fault which bounds the coal district. The variations in the thickness of the trap rock are due to irregularities of its upper surface only, the under surface remaining level. The area of this underground stratum of trap, as at present ascertained, amounts to 25 square miles. The swellings of the upper surface of the trap, sometimes rising 60 or 70 yards, cause considerable irregularities in the ground above, which are still further increased and complicated by numerous small faults, locally "slip things" which do not extend below the trap, as the larger faults do; the upper surface of the trap also gives off numerous vertical dykes, which send off branches horizontally into the coal strata, there again subdividing into smaller veins of a white colour; these veins when first discovered often appear isolated, but as the working proceeds, their connexion with the adjacent dyke or stratum of trap is usually made apparent. To the south-west of the Rowley Hills four other subterranean beds of trap occur, whose connexion with each other or with the Rowley trap has not yet been traced. The rocks in contact with the trap are always more or less altered by it; and the change is always greater *above* the trap than below it; bitumous coal becomes anthracite, but the intervention of any thin shale has been sufficient to protect it. Ironstone is rendered black if in contact, green if separated by shale: the shales are indurated, the sandstones rendered quartzose and almost vitrified. The "green-rock," or trap, itself is most compact in the Rowley Hills, and becomes coarser at a distance, especially in the "swellings" where crystals of mesotype and phrenite are common; it is darkest coloured in the central and thick beds, becoming lighter coloured and even white in the veins. The second part of Mr. Blackwell's paper described the faults which traverse the South Staffordshire coal-field. This coal-field is bounded on the west and east by great lines of fault, beyond which the new red sandstone occupies the place of the coal. The downthrow of the great western fault has been ascertained in one place to amount to 300 yards. The centre of the field is crossed by the hills of Silurian rock at Sedgley, Wren's Nest, and Dudley, and by the trap rock of Rowley; to the north of this line the level, and apparently unbroken surface, is traversed by numerous east and west faults, some of which extend quite across the coal-field; nearer Rowley the faults range more north-east and south-west; and to the south of the Rowley Hills they are smaller and more irregular, but still somewhat north-east by south-west. The most northern of the large faults, near Wolverhampton, is a downthrow to the north, of 120 yards in its central and deepest part; those which succeed are downthrows to the south of 40, 70, 79, 130, and 50 yards respectively at the deepest part, coming towards either end, and often quite disappearing without reaching the boundary of the field; these are followed by the Dudley-port trough faults, the first a downcast to the south-east of 30 yards, the second a rise to the same amount; the West Bromwich and Oldbury faults are downthrows to the east of 40 and 170 yards. On the southern part of the coal-field one great fault runs north-west and south-east parallel with the hills, and having a maximum downthrow to the west of 150 yards; some of the smaller north-east and south-west faults extend from this line to the great western boundary fault, whilst others die out at shorter distances; some of them amount to 150 and 200 yards. In concluding, the author states—1. That the transverse faults must have been produced subsequently to the boundary faults, and to the elevation of the Silurian hills.—2. That the direction of these faults is dependent on the central line of elevation.—3. That the great centre of this system is the Dudley-Port trough.—4. That the underground trap of Wolverhampton proceeded from the Rowley Hills, and was injected prior to the formation of the east and west faults, which were probably caused by the withdrawal from beneath the coal strata of the great mass of igneous rocks in the Rowley Hills and Wolverhampton stratum; on the southern side of the field, the downthrows of the coal are also greatest near the large central mass of trap. Sir H. DE LA BECHE and Mr. JUKES acknowledged the services render by Mr. Blackwell to the Geological Survey, by the use of his maps and sections.—Prof. SEDGWICK remarked on the difficulty of accounting for the injection of such enormous masses of trap rock as were here described, or such as the Great Whinsill of the North of England, by any dinamical means; he also pointed out the difference between these beds, which had evidently been injected horizontally between the layers of strata already consolidated, and other instances in which (like lava streams spread over the bed of the sea) the trap had been originally uncovered, but had become buried beneath gradually accumulating strata at the bottom of the sea.—Mr. PHILLIPS attributed these, and other similar systems of faults, to movements of elevation and depression taking place subsequently and subordinately to other elevatory movements, by which lines and areas of greater and less resistance were formed; there was no necessity for supposing any sudden or violent action, but only a gradual change in the dimensions of a given area in one direction.

A letter was read, from Mr. I. LEA, the American conchologist, to the Dean of Westminster, "On the Discovery of the Reptilian Foot-prints in the Old Red Sandstone, near Pottsville, Pennsylvania." The foot-prints in question were discovered by Mr. Lea, in the gorge of the Schuylkill, in the Sharp Mountain, near Pottsville, on a slab of sandstone, which is also ripple-marked, and impressed by rain drops; they consist of six distinct impressions in a double row, each foot-mark being doubled, by the hind foot having fallen into the track of the fore foot, but rather in advance of it. The fore feet had five toes, three of which were apparently armed with claws; the length of each double impression is 4½ inches, its breadth 4 inches; the outside breadth of the double track is 8 inches; the length of the step 13 inches; the impression of the dragging of the tail is distinct, and occasionally obliterates part of the foot-steps: the ripple marks are 7 or 8 inches apart. The foot-marks are described as bearing a remarkable resemblance to those of the recent alligator, and also as somewhat like those of the Chirotherium of the new red sandstone; but, as the animal was doubtless peculiar, Mr. Lea proposes to call it *Sauropus primævus*. The geological position of the foot-marked sandstone is about 8500 feet below the upper part of the coal formation, in which Dr. King lately discovered the foot-prints of a reptillian quadruped in the western coal-field of America.—Sir C. LYELL stated, that until a recent period, no indications of air-breathing animals more highly organized than insects were known below the Permian system. Dr. Goldfuss had, however, discovered the skeletons of two reptiles in the coal strata near Trèves; and he was disposed to consider the rock described by Mr. Lea as really belonging to the old red sandstone.

THE LATE ACCIDENT AT THE BRITANNIA BRIDGE.—At the request of Mr. Webster, Mr. ROBERT STEPHENSON gave a brief account of the accident to the hydraulic press which lifts the tube at the bridge across the Menai Straits He proceeded to explain the precautions that had been taken to avoid the consequences of any accident. It was originally intended that the tube should be lifted 6 feet, that a link should then have been taken off, and the space built up. This was happily not carried out, and such was the care taken, that as the tube rose, men were stealing in, so to speak, small planks of timber. But for these precautions the fall would have been fatal to the whole structure, for, as it was, it fractured bearers of cast-iron upwards of 500 tons weight. The tube was never for a moment suspended in air, and he had since taken the additional precaution of packing the space between the cross-heads and the pump with small iron wedges. No accident could now take place. The fracture in the cylinder occurred in what might have been considered the very strongest place. The pressure at the time was no more than 3¼ tons to the square inch, by no means an unusual pressure. As connected with the cause of the accident, he might state that a short time previously, when the presses on both ends were working simultaneously, it was remarked that the tube had a strange tremulous motion along its whole surface. In a short time it increased, until the vibration assumed the character of a short wave. At every action of the pump the whole mass seemed to acquire a state of pulsation, comparable to nothing but the pulse of a man's arm. The presses were stopped, and since they have only been worked at one end. With respect to the immediate cause of the accident, he might state that the shape of the cylinder-square was not the best, and no doubt the weekness had arisen from unequal cooling. Only one of the presses was at work when the accident occurred.—Dr. ROBINSON, in moving the thanks of the meeting to the President, remarked upon the singular fact of the vibration spoken of by Mr. Stephenson. He (Dr. Robinson) presumed that the motion in the end of the tube being raised, was reflected from the fixed end, and hence the vibration.—Mr. STEPHENSON said that the fact of his having allowed the damaged cylinder to be used after he knew it was faulty had been strongly commented upon. In answer to that accusation of indiscretion, he begged to state that the fault lay in the collar of the casting, where no pressure came.—Mr. ROBERTS remarked that the way to obviate vibration was to work the engines at unequal speed. He considered that the shape of the casting was bad, and the mode of casting also not the best. It would greatly improve the strength of such work if spiral casting were to be adopted; that is, to pass the metal into the mould in a spiral direction.—Prof. WILLIS and Mr. WEBSTER followed with some remarks on the interesting subject of vibration; the latter gentleman considering that the pulsation spoken of might have had some influence in causing the fracture. There might be a conspiration of vibration in the tube and the press which would destroy the cohesion in the particles of the metal, and cause the fracture.—After a few other conversational remarks from Mr. EATON HODGKINSON and others, the subject dropped.

ON THE COMPARATIVE COST OF MAKING VARIOUS VOLTAIC ARRANGEMENTS, by Mr. W. S. WARD.—The author stated that a series of calculations, founded on data, produced to the Chemical Section at Swansea, showed the efficient power of three generally used forms of battery, known as Smee's, Daniell's, and Grove's, would be equal when 100 pairs of Smee's, 55 pairs of Daniell's, or 34 pairs of Grove's were used, and that the expense of working such batteries, as regards a standard of 60 grains of zinc in each cell per hour would be about 6d., 7½d., and 8d. respectively. This communication led to conversations on the Economy of the Electric Light and Electro-Magnetic Engines, in which Dr. Faraday, Mr. Shaw, Mr. Hunt, Mr. Elkington, and other gentlemen, joined.—Dr. FARADAY remarked on the imperfect character of the electric light, and its inapplicability for purposes of general illumination; all objects appearing dark when the eye was embarrassed by the intensity of the electric arc.—Mr. SHAW and Dr. PERCY instanced the magneto-electric machines which are employed at Birmingham for electro-plating, in which the current cost of the motive-power—viz., a steam-engine to put the magneto-electric machine in action was the only working cost.—Mr. ELKINGTON stated that they had never been induced to abandon the voltaic battery which they employed in their manufactory, finding it more economical than the magneto-electrical machine, of which he was the patentee. He also stated the remarkable fact, that a few drops of the sulphuret of carbon, added to the cyanide of silver in the decomposing cell, had the property of precipitating the silver perfectly bright, instead of being granulated so dead as it is when thrown down from the solutions ordinarily employed.

ON PHOSPHORUS AS PRODUCING COLD-SHORT IRON, by Mr. RINMAN.—This was a statement of the discovery in the Swedish iron of phosphorus whenever it presented the peculiarity of being cold-short, as it is technically termed. The process adopted was the following:—The pig-iron, weighing about 3 grms., and reduced to small pieces, was dissolved in diluted nitric acid—the solution evaporated to dryness, the dry mass heated strongly with free access of air in order to destroy all carbon. After heating, the dry mass was triturated and mingled with six times its weight of soda, a little chlorate of potass and a little silica, and smelted as long as any gas was disengaged. The smelted mass was exhausted by boiling water, and digested for some hours. The solution was filtered, the undissolved residue washed with hot water, containing a small quantity of chloride of ammonium. The solution was evaporated to dryness, and the dry mass treated with hydrochloric acid and dissolved in water. After filtration, the solution was neutralised, and the phosphate of lime was precipitated in a closed vessel by a solution of chloride of calcium with ammonia. This method is published more extensively by T. Akerman, professor in Fahlun.—Dr. PERCY spoke of the importance of this inquiry, particularly in such a district as Birmingham. He then instanced many of the peculiarities of the Staffordshire iron which contain, phosphorus, and spoke of the peculiarity of the Berlin iron, which is so singularly fluid in casting, as being probably due to some such combination.—Dr. Ronalds, Dr. Miller, and Mr. R. Phillips confirmed the fact of the general presence of phosphorus in cast-iron.

PATENT TIDE-WINDING APPARATUS, by Mr. RICHARD ROBERTS.—The description of this invention is rather complex, having reference to drawings; its peculiarities are these:—Two chain-wheels or pulleys, loose on a shaft, are provided with studs or projections on their peripheries, to prevent the chain from slipping. The pulley is placed on a stud in the framing, under which pulley the chain also passes. A hollow weight to ascend and descend with the tide, and a counter weight heavy enough to hoist the weight at first alluded to, and preserve the tension of the chain whilst the tide is rising, are provided, the hollow weight being sufficiently heavy to hoist the other two during the ebbing of the tide. Whilst the hollow weight is rising with the tide, one of the pulleys rotates, and carries with it ratchet clicks over the teeth of a wheel, whilst the chain passing from the hollow weight to one of the other weights just alluded to, allows the latter to descend, and the clicks upon one of the pulleys, by operating on a ratchet-wheel, to effect the rotation of the shaft, the weight operates upon the shaft, to which is attached clock-work, or other mechanism. During the ebbing of the tide, and consequent descent of the hollow weight, the weights and counterweight are made to ascend and descend in an equal and corresponding ratio. During both changes of the tide the weight ascends, and maintains by its gravitation the motion of the clock-work or other mechanism, until the influx or efflux of the tide rewinds it.

[*To be continued in next week's Mining Journal.*]

From the report of Prof. Phillips, it appeared that during the present meeting of the association there had been present—Old life members, 277; old annual, 94; new life members, 11; new annual, 32; associates, 439; ladies, 237; and foreigners who had arrived by railway, 32—total, 1122 persons; from whom had been received, 95*l.* 9*d.* These numbers had only been exceeded twice at any meeting of the association which had been held since they assembled in Birmingham 10 years ago.

IVORY AS AN ARTICLE OF MANUFACTURE.—At the meeting of the West-Riding Geological and Polytechnic Society, Mr. Dalton read a paper on this subject. He said there were several sorts of ivory, differing from each other in regard to composition, durability, and external appearance, and also in value. The principal sources from whence ivory was derived were the western coast of Africa and Hindostan. Camaroo was generally considered the best, on account of its colour and transparency. In some only considered the best, parency could be discovered even at the outside of the tusk. The best tusks the transapt to be deceived with regard to transparency, because the Gentlemen were mislead them by making it transparent by a process of his own. But the finger nufacturer could of time would soon indicate the deception. It was as well not to the most transparent kind; for if they got the genuine article, the on having what brown at first, it would eventually become white. The African somekind of which the best cutlery was made; and though its degree of the rency was not so great as the Camaroo, it was sufficiently beautiful in its co and fineness of grain as to render it suitable for the best kind of cutlery. Bu there was a third description, called the Egyptian, which had lately been brought into this country, which was 15 per cent. lower than the Indian, but was very wasteful in working. Mr. Dalton next gave a description of the specific gravity of the different kinds of ivory he had referred to. He had been furnished with an analysis to show the relative amount of animal matter in the three principal varieties of ivory. The African showed a proportion of animal over earthy matter of 101 to 100; the Indian, 76 to 100; and the Egyptian, 70 to 100. Thus, though the composition was much alike, yet there were those differences between the animal and earthy matter. He also showed the difference as to the quantity of dust used in the manufacture of gelatine. With respect to the increase in the manufacture of ivory, he said that it was now within the memory of man that there were not more than 15 per cent. workers of ivory in Sheffield; but now they were upwards of 40 per cent. Forty years ago there was only one dealer of ivory in Sheffield; at present there were five or six. The value of the annual consumption in Sheffield was about 30,000*l.*, and about 500 persons were employed in working it up for trade. The number of tusks to make up the weight consumed in Sheffield, about 180 tons, was 45,000, the average weight of each being only 9 lbs. Many weighed from 60 to 100 lbs., so that some must be very small indeed. According to this the number of elephants killed every year was 22,500: but supposing that some tusks were cast and some animals died, it might be fairly estimated that 18,000 were killed for the purpose. This was a matter which was not generally known, it being a prevalent opinion that the tusks used for ivory were such as were cast by the elephants when alive.

NEW ELECTRICAL MACHINE.—On Wednesday evening we had the satisfaction of witnessing the effect of one of Mr. W. G. Armstrong's hydro-electric machines, at the works of Mr. H. Watson, High-bridge, the manufacturer. This machine, when complete, will be the most powerful yet constructed. It was ordered by Louis Phillippe, the late King of the French, for the Academy of Sciences in Paris, just previous to his leaving the throne, and the order having since been sanctioned by the Republic, is now being forwarded to Paris. For the information of many of our readers, we may mention that this description of electrical machines is produced in this town only, having originated and been thus far perfected entirely in this locality. The boiler, which is made of very strong plates of iron, contains an interior fire for raising the steam; it is insulated, standing on plate-glass pillars 3½ feet long, placed in the form of a T, which were manufactured by Messrs. Swinburne and Co., of this town, for the purpose. The fittings upon the boiler are simply one row of 75 jets, divided into three parts, so that the machine can be used either in one-third, two-thirds, or its whole power at one time. On opening the valves to those jets, and blowing the steam through them at a high pressure, the machine is in action, and rapid and powerful sparks of electricity are produced, and can be received from any part of the boiler, and shown by a sparking rod. The electricity may be also collected in the usual way with a battery, but from the intensity of the charge and rapidity with which the electricity is produced, it is very liable to be fractured, as soon as the valve is again closed and the steam prevented escaping; the machine is then at rest, and out of action. The construction of these jets, from which the steam issues, is very peculiar; we had an opportunity of examing one, but cannot attempt here to describe it. The institution for which this machine is intended is one of the most scientific in the world, and being in possession of such a machine, which will be used entirely for scientific researches, there it a probability that discoveries of a highly interesting, as well as useful, nature in the arts and sciences will be made. The French Consul, who was present, stated that he should forward a report of the proceedings to the ministers.—*Newcastle Guardian.*

ON THE DURATION OF WOOD, AND MEANS OF PROLONGING IT.—The following are the results of experiments made with great care and patience by Mr. G. S. Hartig:—Pieces of wood of various kinds, 2 5-8th inches square, were buried about an inch below the surface of the ground, and they decayed in the following order:—The lime, American birch, alder, and the trembling-leaved poplar, in three years; the common willow, horse-chesnut, and plane, in four years: the maple, red beech, and common birch, in five years; the elm, ash, hornbeam, and Lombardy poplar, in six years; the robinia, oak, Scotch fir, Weymouth pine, and silver fir, were only decayed to the depth of half an inch in seven years; the larch, common juniper, red cedar (*juniperus virginiana*), and arbor-vitæ, at the end of the last-mentioned period remained uninjured. The duration of the respective woods depends greatly on their age and quality; specimens from young trees decaying much quicker than those from sound old trees; and, when well seasoned, they last much longer than when buried in an unseasoned state. In experiments with the woods cut into thin boards decay proceeded in the following order, commencing with the most perishable order: The plane, horse-chesnut, poplar, American birch, red beech, horn-beam, alder, ash, maple, silver fir, Scotch fir, elm, Weymouth pine, larch, robinia or locust oak. It has been proved, by repeated experiments, that the best mode of prolonging the duration of wood is to char it, and then paint it over with three or four coats of pitch. But simply charring the wood was of very little utility, as were also saturations with various salts, acids, &c.—*Revue Horticole*

THE RAINBOW.—The origin of this familiar phenomenon is thus explained by Dr. Thomson:—If a solar ray impinges upon a piece of glass of a triangular form, technically called a *prism*, and is projected upon a white screen in a dark room, it will be separated into seven different colours—red, orange, yellow, green, blue, indigo, violet; three of which—red, yellow, and blue—may be considered as primary. The relative position of these hues is always the same—the red, or least refrangible ray, appearing nearest to, or at the smallest angle with the line in which the sunbeam falls upon the prism, and the violet, or most refrangible ray, being bent from that straight line at the greatest angle. * * * The co-existence of the following circumstances is requisite for the production of the rainbow; the sun's altitude must be less than 45°; the solar rays must impinge upon the falling rain, and the observer must interpose." The lunar rainbow arises from the same causes as the above, only the effect is less brilliant, and they are more rare.

PORT AND HARBOUR OF CHESTER—RIVER DEE.—A most important inquiry took place at the Town-hall, Chester, during the last week, before two Admiralty Commissioners. The object of the inquiry was to ascertain how far the River Dee Company had carried out its engagements respecting the maintenance of a depth of water for vessels drawing 15 feet at high water of a moderate spring tide, in this important and once flourishing navigation. It is contended by its opponents, that the company has embanked large estates from the estuary of the Dee, at the sacrifice of the navigation. The meetings were numerously and respectably attended, and among those present were—Sir A. Dalrymple, Mr. Rankine, and Mr. W. A. Provis, C.E., on the part of the company; Mr. Henry Robertson, C.E., and Mr. Robert Roy, secretary; and Mr. Marten, Parliamentary agent, representing the Chester and Shrewsbury Railway Company; and Mr. T. L. Marriott, and Mr. Hamilton Fulton, C.E., on the part of the shipping and manufacturing interests. The report of the Admiralty is looked for with much interest by all parties concerned, and the citizens of Chester are sanguine as to the Dee Company being compelled to restore the navigation to its former efficiency.

A WEAKNESS OF THE CHEST AND ASTHMA CURED BY HOLLOWAY'S PILLS.—Copy of a declaration made by Mr. C. Zeitson, of Nymegen, in Holland, dated 24th August, 1849:—"I, the undersigned, declare that I have been perfectly cured of a weakness of the chest and difficulty of breathing by the use of Holloway's pills. I had been a sufferer for years, and was unable to get the least relief from the various remedies I tried, until I took these inestimable pills, and I invite all who may be similarly afflicted to use the same remedy without delay.—(Signed) C. ZEITSON." They may be taken in all cases of old coughs, recent colds, and asthmatical affections.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

LITERARY NOTICES.

A Guide to Port Stephens, in New South Wales, the Colony of the Australian Agricultural Company. By ALEXANDER HARRIS. London: W. S. Orr and Co., Amen-corner, Paternoster-row.

The Australian Agricultural Company, who were first incorporated in the year 1824, having for the last 20 years confined their operations to cultivating and grazing estates, which were selected with great care in the immense continent of New South Wales, have determined on offering for sale, or lease, all that portion, containing 500,000 acres, situated near Port Stephens, and about 100 miles from Sydney. This estate is bounded by the River Manning intersected by other streams, and provided with roads and bridges, which have been constructed by the company at a great cost. Mr. Harris, conceiving that the Australian Agricultural Company having determined to sell, or lease, their large estate at Port Stephens, on terms that possibly will bid many small capitalists to emigrate, thinks that a guide-book has become necessary. To make the book complete and serviceable to all, the case of the largest and the smallest capitalists are included in its instructions so as to furnish all necessary information in as definite and clear a form as possible, from the lowest capitalists, who ought to be advised to emigrate as such, up to the highest.

With the views of the Australian Agricultural Company we have nothing to do; their affairs within the colony were for many years conducted by Sir Edward Parry, the North Pole explorer, and a great portion of the land was selected by that indefatigable discoverer. Mr. Harris, in the little work he has given to the public, presents no inflated picture to the emigrant of sudden prosperity, or plethoric wealth, but he shows how, with small capital and great industry, the diligent man may progress in his new country. The work is written in a clear wholesome style, fit for the comprehension of the class of people for whom it is intended. Several of the descriptions are highly graphic, and can be perused with interest by those remaining in the mother country. Mr. Harris's little book is a complete guide for the emigrant, not only to Port Stephens, but the other parts of the colony; he selects, however, this one as being free from the absurd and vexatious regulations of that incubus of progress, the *impotent Colonial-office.*

The emigrant going here finds, in the climate, the capacity of the soil, and the proximity to the capital and the sea, a never-failing market, the total of which can nowhere else be found combined. No far distant interior has to be sought by a toilsome and perilous journey inland; no vast track is placed before the emigrant to perplex him in his choice; there is no danger of his sitting down within reach of the vapours of pestilential swamps. His task is definite, confined, and safe. Civilisation has preceded him to the very ground he is to occupy a quarter of a century since, and he obtains his location at about half the ratio of a distant interior settlement, derived through the regulations on the remaining crown lands of the colony. Appended to the work are statistical tables of the exports and imports of the colony, with much other useful information; and the work, we have no doubt, will be perused both by the intending emigrant, and the friends of those who have already settled in Australian localities.

BALLYCASTLE COALS.—This article of native produce, the rising of which has been recommenced with considerable spirit, is occasionally imported into Belfast, and sells readily at the low prices at which the pit-masters can afford to dispose of it. It suits well even for household use; and we hope that it will soon be found in regular and abundant supply at our quays.—*Banner of Ulster.*

ON NERVOUS DEBILITY AND GENERATIVE DISEASES.

Just published, the fortieth thousand, an improved edition, revised and corrected, 120 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Author, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS, consulting surgeon, 15, Albermarle-street, Piccadilly, London. 31

REVIEWS OF THE WORK.

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, *On Manhood, and the Causes of its Premature Decline; with Plain Directions for its Perfect Restoration.*—[Strange, Paternoster-row.]—This is a book replete with valuable advice and information. It developes the fearful shoals on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine.*

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Era.*

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle.*

Published by the author, and may be had at his residence; sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester; Howell, 16, Church-street, Liverpool; Robinson, 11, Greenside-street, Edinburgh; Campbell, chemist, 146, Argyle-street, Glasgow; Berry and Co., Capel-street, Dublin; and by all booksellers.

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PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. This section is illustrated by 17 coloured engravings.—PART THE FOURTH contains a prescription for the prevention of disease by a simple application, by which the danger of infection is obviated. This important part of the work should not escape the reader's notice.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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BY SAMUEL LA'MERT, M.D., 37, BEDFORD-SQUARE, LONDON.

Doctor of Medicine, Matriculated Member of the University of Edinburgh, Licentiate of Apothecaries' Hall, London, Honorary Member of the London Hospital Medical Society, &c.

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Transactions of the British Association.

DISTRIBUTION OF [illegible]R THE SURFACE OF THE GLOBE.—Sir R. I. MURCHISON drew attention to the distribution of gold over the surface of the globe, and a comparison between the auriferous products of the Ural Mountains and California." Sir Roderick stated that, this subject having excited considerable interest, he took occasion to bring it before them—not only to develope his own views and those of other authors, but also to elicit by discussion the knowledge of the geologists, mineralogists, miners, and statists, who might be present. An enlarged Mercator's projection of the world was exhibited, on which all the leading ridges which had afforded gold ore, in times past or present, were marked. Referring to the works of Humboldt and Rose on the Ural Mountains, as well as to those of Helmersen and Hoffman—the former of whom some time ago made a map of all the gold tracts of Siberia, and also citing the numerous contributions of M. Adolf Erman, and particularly the last—Sir Roderick gave a condensed view of his own observations in the gold regions of the Ural Mountains. This exploration of that chain, with his associates, M. de Verneuil and Keyserling, had led him to form the opinion, that gold veins had generally been produced wherever certain rocks of intrusive character—namely, greenstones, porphyries, sienites, granites, and serpentines—had been intruded through palæozic rocks, particularly as affected the Ural among those of the Silurian epoch. It was, in short, where clay-slates, limestones, and grauwacke sandstones had been penetrated by such igneous rocks, that quartz veins abounded, and with them a diffusion of gold ore in grains, leaf, and veins. To the general view of Baron Von Humboldt, that the richest gold deposits were those which were derived from ridges having a meridian direction, M. Adolf Erman was decidedly opposed; but Sir Roderick was of opinion that, although they might be unable to explain the cause, it was a fact that the greatest quantity of gold ore had been obtained from chains having a nearer relation to north and south than to equatorial, or east and west directions—due, perhaps, to the general form of the chief masses of land, and the prevailing strike of the palæozic rocks. He thought, however, that these terms, meridian or equatorial, were used in the more general terms employed by miners. He next pointed out the error into which some persons had fallen, of supposing that the Uralian mines were worked underground—the only small subterranean work there yielding a very slight profit. All the other mines there were simply diggings and washings, which were made in the detritus, or shingle, accumulated on the slopes of the ridges and in the adjacent valleys, and, with one exception, were all upon the east side. This phenomenon in the Ural Mountains was a necessary result of their structure. Exhibiting maps and sections, and views of the Ural Mountains, and referring to the description of California by Erman and others, he entered upon a comparison between the two countries, and showed that there was a very great coincidence of mineralogical structure; and that with these "constants" the same results obtained in America as in the Ural. He contended, however, against the inference that any large tract of California would be found to be as uniformly auriferous as the banks and slopes of the upper tributaries of the Sacramento. The breadth of the auriferous detritus of California had yet to be ascertained. As, however, the lower or coast ridge, which passed by San Francisco, seemed to be in miniature, what the higher parallel mountains were upon a larger scale, in being composed of greenstones, porphyries, grauwacke, sandstones, and quartz rocks, it was probable that very much of the great intervening valley of the Sacramento might be strewed over at intervals with auriferous *debris.* He glanced at the various modes of procuring gold; and, adverting to the fact that in the Ural Mountains the veinstones, *in situ*—in this case little or no admixture with other ore existed—had proved very slightly remunerative when worked further downwards; he remarked on the view of Humboldt, who, looking to the great lumps, or "pepitas," occasionally found in the surface rubbish, supposed that there might have been some connection between the production of gold and the atmosphere, since, judging from these specimens, it was from the superficial extremities of these quartz veins that the richest branches of gold must have been derived—the veinstones when followed downwards, having usually proved unproductive. Notwithstanding that there were cases, chiefly on a small scale, as in Hungary, where gold ore continued to ramify in veinstones of great depths, yet it was a statistical fact that all the great masses of gold ore had been, and were, derived from superficial rubbish. The major part of detritus he carefully distinguished from modern alluvia. The existing rivers had little more to do with the phenomenon than that they had, by terrestrial action, occasionally laid bare the edge of the previously-formed gold accumulations. He did not deny, however, that where streams flowed directly from rocks, *in situ*, which were impregnated with gold, that auriferous detritus would be the natural result. Sir Roderick then traced the history of gold and its development, as known to the ancients and our ancestors of the middle ages. He glanced at the operations of gold-finding in Wales, in Scotland, and Ireland, which had at one time been worked, and were now abandoned. The Scythian tract had remained unknown till this century. The Russians were similarly ignorant till the same recent period. These Russian mines that formerly afforded 500,000*l.* sterling annually, now yielded nearly 4,000,000*l.* As for California, he speculated that, judging analogously, it would only be in certain patches that very great wealth would be discovered; and that it would be hasty to conclude that, because gold detritus had been discovered near the sources of the Sacramento, that all the intermediate tract should be equally productive. The California discovery was not likely to produce any change in the standard. He then shortly adverted to the discovery of gold in Australia. In support of his general views, he called forth the evidence of Professor Rogers, of Philadelphia.—The PRESIDENT agreed with the general opinion of Sir R. Murchison; but he thought that, as geologists, they should receive with caution the opinion that gold was more abundant on the surface than at great depths; neither should they take it for granted that the gold-bearing mountains had a bearing from north to south rather than from east to west—as in California, for example, they differed somewhat from the position laid down, and the Pyrenees differed completely.—Prof. ROGERS remarked, that he had invariably in his researches found gold was generally obtained with more facility by washing the alluvium in the beds, or along the banks of rivers; but these superficial deposits were in general speedily worked out. He did not think that it was at all probable that mining in the solid vein rocks would ever be profitable, not only from the great expense of penetrating for it, but also from the difficulty in separating it from the sulphates of iron, copper, and sometimes lead. He agreed generally in the opinion, that gold was always found in peculiar combinations of strata, and he also thought that the deposits found in the alluvium were merely superficial. The regions in which gold was to be found were much more extensive than was generally imagined. He considered that the whole regions extended from Lower Canada down to the central part of Georgia, a distance of more than 1000 miles, throughout which the gold quarry rocks, or auriferous deposits, have been discovered. He thought that the superficial deposits of gold found in these regions and in California would, after the lapse of a few years, be exhausted; and as he conceived that the surface gold was greater in quantity than in veins, there was little fear that more would be obtained than was simply necessary for the purposes of society.—Prof. SEDGWICK thought that the condition might be constant, but the age would not be so; but he could not believe, for a hundred different reasons, that gold was more plentiful on the top of veins than in the veins themselves; and, lastly, he could not agree that the gold mountains ran from north to south.—Sir H. DE LA BECHE agreed with Prof. Sedgwick, that the gold was not found, as had been stated by Sir R. Murchison, in the older palæozoic rocks, and that it depended more on mineral and physical conditions rather than on age, inasmuch as metals (and why not gold?) had been found in formation equal to the coal measures. His reason for supposing that gold was not confined to the tops of the veins was, that conditions being the same, the same results would follow.—Sir R. MURCHISON then replied, showing that the theories of those who differed with him with regard to the greater abundance of gold at the surface than in the veins, differed with every practical man on the subject; and they differed also in regard to the fact, that the hill ranges were from north to south more than to the equatorial line. This was so in all cases in which large quantities of gold were found, although some modification might be necessary as related to small quantities.—Mr. DARWIN stated an instance in which that had occurred.

ON A METHOD OF SUPPLYING THE BOILERS OF STEAM-ENGINES WITH WATER, by Mr. W. S. WARD.—Mr. Ward's suggestion was to use a small supplementary pumping engine, having a working cylinder with valves so arranged that the piston may be put in motion by either steam or water passing through it, to be supplied with steam, by a steam pipe, the entance to which is somewhat narrow, and inserted in the boiler te be supplied a little above the level at which it is desired to maintain the water therein. Such aperture should also be about the centre of a marine boiler. The working cylinder should be attached to a pump of such size as to be easily worked by the pressure of the steam. The exit pipe of the steam cylinder must communicate with the inlet pipe of the pump, so that if the cylinder be actuated by steam, the steam will be condensed, and its heat communicated to the water to be supplied to the boiler; or if the working cylinder be worked by water proceeding from the boiler, a considerable part of such hot water will be returned by the pump. The mode of operation of such apparatus apparatus will be, that whenever there is a working pressure of steam in the boiler, the apparatus will be in action; but if the level of the water be below the aperture of the small steam pipe, the action will be moderately rapid, and a supply of water be pumped into the boiler; and when the water in the boiler rises to the aperture, this being small, will be as though choked by the water, which will be forced through the working cylinder, moving the piston and pump very slowly; a portion of the water thus escaping from the boiler will be returned by the pump. Such last-mentioned action cannot continue long, inasmuch as the the level of the water must be reduced; therefore the average level of the water in the boiler will be, with slight oscillations, maintained at the height of the supply pipe, In the course of a brief discussion which followed, the President said that it was a new and ingenious idea, but one which he was afraid was not practically useful.

THE ELECTRIC TELEGRAPH.—Mr. WHISHAW delivered an address on the present state of telegraphic communication in England, Prussia, and America, from which it appears that the cost of telegraphic lines in England is 150*l.*, in America 30*l.*, and in Prussia under 40*l.* per mile. The telegraph in Prussia consists of one wire, extending over 1296 miles, is under ground, covered with gutta percha, and affording many advantages over the present lines in England. The instruments used in Prussia are Morse's, Siemens', and Kramer's. Morse's is capable of transmitting 1000 words in an hour. In America there are upwards of 10,000 miles of telegraphic line, all worked in a cheap manner. In England there were only 2000 miles in operation, and the cost of transmission by it, as yet, was much higher than in other countries. In this country the wires were exposed to the atmosphere, and the effect injurious. If the wires were placed under ground, it would be much more difficult to destroy them. In the late revolutionary movements in Prussia, the telegraphs above ground were cut away 20 times, while those under ground escaped untouched. Relative to the American telegraph he should say nothing additional, as there was a gentleman of eminence present, well acquainted with that country, who would give them some valuable information upon the subject: the gentleman to whom he alluded was Mr. Flanagan.—Mr. FLANAGAN then said there was one observation of Mr. Whishaw's, in introducing him to the meeting as a learned man, which he begged leave to correct. He was a plain working farmer, residing on his own plantation, near the line of telegraph extending from New York to St. Louis, and he could add little to the information so clearly and accurately given by Mr. Whishaw. The simplicity and expedition with which the American telegraphs were constructed must astonish the Old World. Locust, or laburnum, poles, 20 feet long, were cut in the woods by the different farmers along the line, and placed by them at their several stations. Holes were made, 3 feet 6 inches deep, the poles were set—glass insulators being used instead of earthenware. Within 3 inches of the top the wire extended, and in a few days, at a comparatively trifling expense, whole lines were formed—the repairs of the post and wires being entrusted to the farmers living at intervals of 15 miles along the lines, who were furnished with a few tools to effect the repairs; the farmer had for his reward the privilege of making his communications by the telegraph free. The lines were generally carried along the sides of the mail rows throughout the country, and it was astonishing the little amount of repairs annually necessary, either to the wires or posts. They had no instance of malicious injury being done to either throughout the country; in fact, each farmer along the whole line, who had supplied materials or labour for its erection, became a shareholder to the extent, at least, of the amount of the labour and materials he had furnished, and thereby gave the residents along the line an interest in its safety.

ON CHAIN PIPES FOR SUB-AQUEOUS TELEGRAPHS, by Mr. WHISHAW.—Three links of a full sized pipe for enclosing the wires of electric telegraphs in crossing rivers, &c, were laid before the section. As the title implies, the pipe is formed by so many links, connected together by sockets—each link varies, according to circumstances, from 18 inches to 24 inches in length, and from 1 inch to 2½ inches internal diameter, according to the number of wires to be inclosed. These pipes, being of wrought iron, are exceedingly strong, and are required merely as a protection to the wires, which are previously insulated by means of gutta percha. Pipes of somewhat similar construction are laid under the Rhine, and other rivers in Prussia, where the undergrouud system of telegraphs is adopted by the Prussian Government, already to the extent of 1200 miles, although many of the railway companies suspend the wires between the posts, as practised in England, America, France, &c. The discussion which followed was brief; its purport was to signify approbation of the invention.

ON THE APPLICATION OF MECHANICAL SCIENCE TO RAILWAYS, by Prof. WILLIS.—In commencing his discourse, the rev. gent. said, that the title set down for his lecture was too comprehensive, for he only intended to give them an application of mechanical science to railways. They would recollect that, some time ago, a commission, of which he had the honour to be a member, was appointed by Government to inquire into the application of iron to railways; and though he was not about to detail to them all the labours of that commission, he would give them some account of the results of a portion of its researches They had found it necessary to ascertain the effect which the passage of loads over iron railway bridges had in deflecting them. They had clearly ascertained the character of the effect a railway engine and tender would have upon an iron bridge when in a state of rest, but they did not know whether, when the train was in a state of motion, the deflection would be greater or less. For the purpose of determining this interesting and most important question, a temporary railroad, the bridge being represented by two iron bars, had been constructed in Portsmouth Dockyard, and so arranged that, by means of an inclined plane, any required degree of velocity could be attained by the carriage with which the experiments were conducted. With this apparatus an interesting series of experiments were made, the weight of the loads being varied; and the uniform result was that the statical deflection—*i. e.*, the deflection caused by the carriage when at rest on the centre of the bars—was three or four times less than the deflection caused when the carriage was in a state of motion. The apparatus which he exhibited to them that evening, was on a much smaller scale than the Portsmouth one; for whilst the latter enabled them to pass a weight of from 3 to 4 tons over the bridge, the former only carried a weight of as many pounds. As the object of the experimental philosopher was to eliminate all obstructing causes, they must begin their experiments on a small scale; so that it was necessary to employ a smaller apparatus, and also to obtain a different material to cast-iron, and a material, too, that would give, by its greater delicacy of texture, closer results, and that would not display the curious phenomenon of "set." He had, therefore, in his more recent experiments, used bars of cast-steel; and in order to do away with any irregular pressure of the carriage—for in the deflection they sometimes found more pressure on the one bar than the other—he had used one bar instead of two. The reverend professor here proceeded to give a minute description of the apparatus, which consisted of a railway, between 20 and 30 feet long, formed of deal planking, and having at one end an inclined plane, with an altitude of about 20 ft. Upon this plane, a moveable break was fixed, so as to hold the carriage at any required height, and to ensure accuracy in the starting point. The centre of the line of rail was occupied by the bridge, and the extreme end opposite the incline was so made as to open slightly outwards, so that springs fixed on either side the carriage might clasp the sides of the line, and retard further motion, thus preventing the carriage from running off the line after passing the bridge. The carriage employed was merely a small model of a luggage waggon, the flanges of the wheels being made outwards instead of inwards, so as to clip the line along which they passed. A long and interesting series of experiments was here performed, the velocity of the motion being considerably varied, the result invariably being that the deflection of the bar was, during the motion of the carriage, triple the extent of the deflection caused whilst the carriage merely rested upon the bar. Mr. Willis now proceeded to observe, that the weight of railway bridges was generally much greater than that of any load that passed over them, whilst his bar was much lighter than the load that had so greatly deflected it. An ingenious contrivance for strengthening the bar, by increasing the weight to be deflected with it, was then resorted to, which showed that the increase in the weight of the bridge had diminished the deflection, although, the professor observed, that to take this as a general principle would be wrong, for there were cases in which an increase in the weight of the bridge actually increased rather than diminished the deflection. He was, however, happy to say that the very serious facts connected with the deflection of iron railway bridges, the results of which he had that evening attempted to develope, did not exist in practice to so great an extent as in theory; and, indeed, they found that the deflection was in practice so slight, that it might be almost altogether neglected. This fact the commission had established by actual experiments upon a bridge on a railway in Surrey. In conclusion, he might observe that some experiments had been made at Portsmouth as to the advantages to be derived from curving bars upwards, which certainly diminished the centrifugal force, and, consequently, lessened the deflection, but no practical results were elicited.

ON AN ECCENTRIC GUAGE FOR WIRE, SHEET METAL, &c., by Mr. ROBERTS.—This invention consists of a plate of brass about 4⅝ inches diameter, and ¼ of an inch in thickness, is recessed on the upper side to the depth of ⅛ of an inch, and diameter of 4 inches, leaving a margin five-sixteenths of an inch broad. In the centre of the recess is a hole into which is fitted a steel pivot, whose upper end is rivetted into a steel disc 38 inches diameter, and one-sixteenth of an inch thick; the pivot is eccentric to the disc one-tenth of an inch, and consequently one point in the periphery of the disc touches the inner edge of the brass margin, with which the top of the disc is level. To the under side of the brass plate a small slide is fitted, to the outer end of which a piece of steel is attached, (by screws,) that passes up through a notch in the brass about ½ an inch, and forms the inner or sliding jaw of the guage; the outer jaw is formed of a similar piece of steel, also passed through the notch in the brass margin, and is fastened to the brass plate by screws. The inner edge of the sliding jaw is rounded to a radius of one-sixteenth of an inch, and is kept in contact with the periphery of the eccentric disc by a spring under the disc, which acts against a stud in the slide projecting through the brass plate. The margin of the brass plate is divided through one-fourth of its circumference, commencing at the centre of the sliding jaw, into 75 equal parts, which are numbered decimally. The extremity of the disc is then set at zero on the scale, and the jaws accurately adjusted to touch each other, after which the extremity of the disc is turned to the tenth division, and a line is made in the disc to correspond with zero on the scale, at which point the jaws will be opened a little. The eccentric metal guage possesses the following properties:—Firstly, a corresponding guage may be made without expensive tools from a written description of the means employed to make the original.—Secondly, it admits of accurate construction and easy ad-

adjustment.—Thirdly, each succeeding number being larger than the preceding, in a progressively increasing ratio, adapts the guage equally well for high or low numbers.—Some conversation arose on the principal of measuring and numbering at present pursued. It was stated by Mr. KNIGHT and others that there was no system. That each man adopted the method of numbering which might accidently recur to him.—Prof. WILLIS remarked that the great difficulty was to get every one to adopt this or any other guage as a standard. He considered that the mathematical nicety of the four-inch guage of Mr. Roberts was an objection, for it would be difficult to attain that precision in all guages made for it.

ON THE GENERAL RELATIONS OF THE NEW RED SANDSTONE, THE COAL MEASURES, AND THE SILURIAN ROCKS OF THE SOUTH STAFFORDSHIRE COAL-FIELD, by J. B. JUKES.—The nature and position of the strata concealed beneath the new red sandstone, is a matter of great practical importance as well as geological interest. The new red sandstone extends itself across England without interruption, ranging nearly north-east by south-west, whilst the coal measures and other older strata, possessing a high economic value, are broken and irregular in their distribution. In the centre of England the new red sandstone expands into a great plain, on each side of which are several small detached coal-fields, and three others, appearing like islands, are entirely surrounded by it—viz.: the coal-fields of Leicestershire, Warwickshire, and South Staffordshire. The inquiries of the author have been directed to ascertain whether these coal-fields are bounded by faults, in which case we might expect to find the coal beneath the whole extent of the new red sandstone plane—or whether the boundaries of the coal measures are not rather to be considered as ancient cliffs and slopes caused by denudation, as in this alternative it will become probable that the coal measures were wholly or in great part destroyed and removed from the intervals between the present fields before the deposition of the new red sandstone. The researches of Sir R. Murchison, and more recently of the Geological Survey, have shown that the three groups of stratified rocks in South Staffordshire—viz.: the new red sandstone, coal measures, and Silurian strata—are each unconformable to the other, because, although they have often nearly the same dip, yet the upper beds are found to rest on different portions of the lower strata at different localities. On the western side of the coal-field the Silurian strata, when apparent, consist of the Ludlow rocks, as at Sedgley and the Hayes; in the centre of the field the coal measures rest on the upper part of the Wenlock rocks, as at Dudley and the Wren's Nest; and further east, at Hay Head, a lower limestone appears, which is probably the equivalent of that at Woolhope. On the south of the district the coal measures rest on Silurian shale, and approach the quartz rock of the Lickey—the equivalent of the Caradoc sandstone. This unconformability indicates an uplifting of the Silurian rocks, and considerable denudation previous to the deposition of the coal measures. In the railway cutting near Dudley the horizontal coal shale and sandstone was seen abutting against a small cliff of Silurian rocks, and contained small quartz pebbles, making it look like an old beach. The unconformability of the new red sandstones to the coal measures is of the same nature, and owing to the same cause; at West Bromwich the upper coal measures below the new red sandstone are not more than 120 or 130 yards thick, whilst a mile off it is 190 yards, where there is no new red sandstone; in other parts it is 200 and 300 feet thick, without any new red sandstone. The boundary of the coal-pit on the south-west is a great downcast joint running from Walsall to West Bromwich and Oldbury, gradually increasing in amount to the south, till it becomes 160 yards; this fault brings in the new red sandstone on the east, covering the coal measures, which are worked beneath it at several points; but the coal rests on Silurian shale, which in more than one instance has been found immediately beneath the new red sandstone, with no coal intervening. The western boundary of the coal-field is evidentlh at some points a fault with a very large downcast to the west. Along the southern boundary the coal and new red sandstone have scarcely any perceptible dip, and appear to be conformable; but there was probably an interval between their deposition, since pebbles of coal are found in the bottom beds of the new red sandstone. It thus appears:—1. That the Silurian rocks were upheaved and denuded before the deposition of the coal measures.—2. That there was a movement and denudation of the coal measures, amounting in some localities to their entire destruction and removal, before the deposition of the new red sandstone.—3. That subsequently to the deposition of the new red sandstone, there was a very great movement of all these rocks, producing there present faults and inclined positions.—4. That the boundaries of the South Staffordshire coal-field, as far as examined, present examples of three kinds of relation between the coal measures and new red sandstones—*i. e.* by conformable succession; by fault, the coal measures being present on the downcast side; and thirdly, where the destruction of the coal measure has brought the new red sandstone into immediate contact with the Silurian strata. Whilst, however, there is great hope that the larger part of the new red sandstone plain conceals productive coal measures, there is no probability that these will be found at a depth of less than 500 or 600 yards below the surface.—Sir R. I MURCHISON expressed his belief that at some future time the whole interval between Wolverhampton and Coalbrookdale would be worked for coal.

ON THE IGNEOUS ROCKS OF THE SOUTH STAFFORDSHIRE COAL FIELD, by Mr. S. H. BLACKWELL.—The superficial extent of the igneous rocks in South Staffordshire was first described by Mr. Keir, in Shaw's history of the county; their under-ground development by Mr. Arthur Aikin, afterwards by Mr. Yates, and again by Sir R. I. Murchison in the *Silurian System*; the progress of mining operations has continually added to the information respecting them. The trap rock, known to the miners of this district as the Green Rock, is most extensively exposed in the Rowley Hills, occupying an irregular area of about two miles in length, and half a mile to a mile and a half in breadth; it also appears in small isolated masses at Netherton Hill, Barrow Hill, and Cooper's Bank, to the south of the Rowley Hills, and north of them, at the Heath Colliery, near Wolverhampton, the Neachells, the New Cross near Wednesfield, at Wednesfield itself, and at Pouk Hill, near Walsall. These scattered points of trap rock on the surface would give no idea of its subterranean extent, since it is met with at different depths from the surface, over a great portion of the Wolverhampton coal district. When sunk through by the coal shafts it often appears to be interstratified with and conformable to the coal, and varies much in thickness and position; but as the workings in the coal have become more connected, it has been ascertained that there exists only one continuous bed of underground trap, which has been already traced from a point one mile north of the Rowley Hills to the Errington Brickyard, a distance of nine miles, with a maximum breadth of four miles between Wednesfield and the Birch Hills. The depth of this stratum beneath the surface, at the point nearest the Rowley Hills, amounts to 175 yards, and it becomes gradually deeper to the northward for 2¾ miles, where it is 234 yards deep; in this tract it is from 5 to 11 yards thick, and only from 5 to 11 yards above the junction of the coal with the Silurian strata. Further north it rises rapidly towards the surface, crossing the ironstone bands and coal strata, which it sometimes splits, and attaining a thickness of from 80 to 90 yards. At Wednesfield New Colliery it again descends to the depth of 17 yards, with a thickness of 44 yards; at New Cross it again rises to the surface, and continues so up to the fault which bounds the coal district. The variations in the thickness of the trap rock are due to irregularities of its upper surface only, the under surface remaining level. The area of this underground stratum of trap, as at present ascertained, amounts to 25 square miles. The swellings of the upper surface of the trap, sometimes rising 60 or 70 yards, cause considerable irregularities in the ground above, which are still further increased and complicated by numerous small faults, locally "slip things" which do not extend below the trap, as the larger faults do; the upper surface of the trap also gives off numerous vertical dykes, which send off branches horizontally into the coal strata, there again subdividing into smaller veins of a white colour; these veins when first discovered often appear isolated, but as the working proceeds, their connexion with the adjacent dyke or stratum of trap is usually made apparent. To the south-west of the Rowley Hills four other subterranean beds of trap occur, whose connexion with each other or with the Rowley trap has not yet been traced. The rocks in contact with the trap are always more or less altered by it; and the change is always greater *above* the trap than below it; bitumous coal becomes anthracite, but the intervention of any thin shale has been sufficient to protect it. Ironstone is rendered black if in contact, green if separated by shale: the shales are indurated, the sandstones rendered quartzose and almost vitrified. The "green-rock," or trap, itself is most compact in the Rowley Hills, and becomes coarser at a distance, especially in the "swellings" where crystals of mesotype and phrenite are common; it is darkest coloured in the central and thick beds, becoming lighter coloured and even white in the veins. The second part of Mr. Blackwell's paper described the faults which traverse the South Staffordshire coal-field. This coal-field is bounded on the west and east by great lines of fault, beyond which the new red sandstone occupies the place of the coal. The downthrow of the great western fault has been ascertained in one place to amount to 300 yards. The centre of the field is crossed by the hills of Silurian rock at Sedgley, Wren's Nest, and Dudley, and by the trap rock of Rowley; to the north of this line the level, and apparently unbroken surface, is traversed by numerous east and west faults, some of which extend quite across the coal-field; nearer Rowley the faults range more north-east and south-west; and to the south of the Rowley Hills they are smaller and more irregular, but still somewhat north-east by south-west. The most northern of the large faults, near Wolverhampton, is a downthrow to the north, of 120 yards in its central and deepest part; those which succeed are downthrows to the south of 40, 70, 79, 180, and 50 yards respectively at the deepest part, coming towards either end, and often quite disappearing without reaching the boundary of the field; these are followed by the Dudley-port trough faults, the first a downcast to the south-east of 30 yards, the second a rise to the same amount; the West Bromwich and Oldbury faults are downthrows to the east of 40 and 170 yards. On the southern part of the coal-field one great fault runs north-west and south-east parallel with the hills, and having a maximum downthrow to the west of 150 yards; some of the smaller north-east and south-west faults extend from this line to the great western boundary fault, whilst others die out at shorter distances; some of them amount to 150 and 200 yards. In concluding, the author states—1. That the transverse faults must have been produced subsequently to the boundary faults, and to the elevation of the Silurian hills.—2. That the direction of these faults is dependent on the central line of elevation.—3. That the great centre of this system is the Dudley-Port trough.—4. That the underground trap of Wolverhampton proceeded from the Rowley Hills, and was injected prior to the formation of the east and west faults, which were probably caused by the withdrawal from beneath the coal strata of the great mass of igneous rocks in the Rowley Hills and Wolverhampton stratum; on the southern side of the field, the downthrows of the coal are also greatest near the large central mass of trap. Sir H. DE LA BECHE and Mr. JUKES acknowledged the services render by Mr. Blackwell to the Geological Survey, by the use of his maps and sections.—Prof. SEDGWICK remarked on the difficulty of accounting for the injection of such enormous masses of trap rock as were here described, or such as the Great Whinsill of the North of England, by any dinamical means; he also pointed out the difference between these beds, which had evidently been injected horizontally between the layers of strata already consolidated, and other instances in which (like lava streams spread over the bed of the sea) the trap had been originally uncovered, but had become buried beneath gradually accumulating strata at the bottom of the sea.—Mr. PHILLIPS attributed these, and other similar systems of faults, to movements of elevation and depression taking place subsequently and subordinately to other elevatory movements, by which lines and areas of greater and less resistance were formed; there was no necessity for supposing any sudden or violent action, but only a gradual change in the dimensions of a given area in one direction.

A letter was read, from Mr. I. LEA, the American conchologist, to the Dean of Westminster, "On the Discovery of the Reptilian Foot-prints in the Old Red Sandstone, near Pottsville, Pennsylvania." The foot-prints in question were discovered by Mr. Lea, in the gorge of the Schuylkill, in the Sharp Mountain, near Pottsville, on a slab of sandstone, which is also ripple-marked, and impressed by rain drops; they consist of six distinct impressions in a double row, each foot-mark being doubled, by the hind foot having fallen into the track of the fore foot, but rather in advance of it. The fore feet had five toes, three of which were apparently armed with claws; the length of each double impression is 4½ inches, its breadth 4 inches; the outside breadth of the double track is 8 inches; the length of the step 18 inches; the impression of the dragging of the tail is distinct, and occasionally obliterates part of the foot-steps: the ripple marks are 7 or 8 inches apart. The foot-marks are described as bearing a remarkable resemblance to those of the recent alligator, and also as somewhat like those of the Chirotherium of the new red sandstone; but, as the animal was doubtless peculiar, Mr. Lea proposes to call it *Sauropus primævus*. The geological position of the foot-marked sandstone is about 8500 feet below the upper part of the coal formation, in which Dr. King lately discovered the foot-prints of a reptillian quadruped in the western coal-field of America.—Sir C. LYELL stated, that until a recent period, no indications of air-breathing animals more highly organized than insects were known below the Permian system. Dr. Goldfuss had, however, discovered the skelotons of two reptiles in the coal strata near Trèves; and he was disposed to consider the rock described by Mr. Lea as really belonging to the old red sandstone.

THE LATE ACCIDENT AT THE BRITANNIA BRIDGE.—At the request of Mr. Webster, Mr. ROBERT STEPHENSON gave a brief account of the accident to the hydraulic press which lifts the tube at the bridge across the Menai Straits He proceeded to explain the precautions that had been taken to avoid the consequences of any accident. It was originally intended that the tube should be lifted 6 feet, that a link should then have been taken off, and the space built up. This was happily not carried out, and such was the care taken, that as the tube rose, men were stealing in, so to speak, small planks of timber. But for these precautions the fall would have been fatal to the whole structure, for, as it was, it fractured bearers of cast-iron upwards of 500 tons weight. The tube was never for a moment suspended in air, and he had since taken the additional precaution of packing the space between the cross-heads and the pump with small iron wedges. No accident could now take place. The fracture in the cylinder occurred in what might have been considered the very strongest place. The pressure at the time was no more than 3½ tons to the square inch, by no means an unusual pressure. As connected with the cause of the accident, he might state that a short time previously, when the presses on both ends were working simultaneously, it was remarked that the tube had a strange tremulous motion along its whole surface. In a short time it increased, until the vibration assumed the character of a short wave. At every action of the pump the whole mass seemed to acquire a state of pulsation, comparable to nothing but the pulse of a man's arm. The presses were stopped, and since they have only been worked at one end. With respect to the immediate cause of the accident, he might state that the shape of the cylinder-square was not the best, and no doubt the weekness had arisen from unequal cooling. Only one of the presses was at work when the accident occurred.—Dr. ROBINSON, in moving the thanks of the meeting to the President, remarked upon the singular fact of the vibration spoken of by Mr. Stephenson. He (Dr. Robinson) presumed that the motion in the end of the tube being raised, was reflected from the fixed end, and hence the vibration.—Mr. STEPHENSON said that the fact of his having allowed the damaged cylinder to be used after he knew it was faulty had been strongly commented upon. In answer to that accusation of indiscretion, he begged to state that the fault lay in the collar of the casting, where no pressure came.—Mr. ROBERTS remarked that the way to obviate vibration was to work the engines at unequal speed. He considered that the shape of the casting was bad, and the mode of casting also not the best. It would greatly improve the strength of such work if spiral casting were to be adopted; that is, to pass the metal into the mould in a spiral direction.—Prof. WILLIS and Mr. WEBSTER followed with some remarks on the interesting subject of vibration; the latter gentleman considering that the pulsation spoken of might have had some influence in causing the fracture. There might be a conspiration of vibration in the tube and the press which would destroy the cohesion in the particles of the metal, and cause the fracture.—After a few other conversational remarks from Mr. EATON HODGKINSON and others, the subject dropped.

ON THE COMPARATIVE COST OF MAKING VARIOUS VOLTAIC ARRANGEMENTS, by Mr. W. S. WARD.—The author stated that a series of calculations, founded on data, produced to the Chemical Section at Swansea, showed the efficient power of three generally used forms of battery, known as Smee's, Daniell's, and Grove's, would be equal when 100 pairs of Smee's, 55 pairs of Daniell's, or 34 pairs of Grove's were used, and that the expense of working such batteries, as regards a standard of 60 grains of zinc in each cell per hour would be about 6d., 7½d., and 8d. respectively. This communication led to conversations on the Economy of the Electric Light and Electro-Magnetic Engines, in which Dr. Faraday, Mr. Shaw, Mr. Hunt, Mr. Elkington, and other gentlemen, joined.—Dr. FARADAY remarked on the imperfect character of the electric light, and its inapplicability for purposes of general illumination; all objects appearing dark when the eye was embarrassed by the intensity of the electric arc.—Mr. SHAW and Dr. PERCY instanced the magneto-electric machines which are employed at Birmingham for electro-plating, in which the current cost of the motive-power—viz., a steam-engine to put the magneto-electric machine in action was the only working cost.—Mr. ELKINGTON stated that they had never been induced to abandon the voltaic battery which they employed in their manufactory, finding it more economical than the magneto-electrical machine, of which he was the patentee. He also stated the remarkable fact, that a few drops of the sulphuret of carbon, added to the cyanide of silver in the decomposing cell, had the property of precipitating the silver perfectly bright, instead of being granulated so dead as it is when thrown down from the solutions ordinarily employed.

ON PHOSPHORUS AS PRODUCING COLD-SHORT IRON, by Mr. RINMAN.—This was a statement of the discovery in the Swedish iron of phosphorus whenever it presented the peculiarity of being cold-short, as it is technically termed. The process adopted was the following:—The pig-iron, weighing about 3 grms., and reduced to small pieces, was dissolved in diluted nitric acid—the solution evaporated to dryness, the dry mass heated strongly with free access of air in order to destroy all carbon. After heating, the dry mass was triturated and mingled with six times its weight of soda, a little chlorate of potass and a little silica, and smelted as long as any gas was disengaged. The smelted mass was exhausted by boiling water, and digested for some hours. The solution was filtered, the undissolved residue washed with hot water, containing a small quantity of chloride of ammonium. The solution was evaporated to dryness, and the dry mass treated with hydrochloric acid and dissolved in water. After filtration, the solution was neutralised, and the phosphate of lime was precipitated in a closed vessel by a solution of chloride of calcium with ammonia. This method is published more extensively by T. Akerman, professor in Fahlun.—Dr. PERCY spoke of the importance of this inquiry, particularly in such a district as Birmingham. He then instanced many of the peculiarities of the Staffordshire iron which contain, phosphorus, and spoke of the peculiarity of the Berlin iron, which is so singularly fluid in casting, as being probably due to some such combination.—Dr. Ronalds, Dr. Miller, and Mr. R. Phillips confirmed the fact of the general presence of phosphorus in cast-iron.

PATENT TIDE-WINDING APPARATUS, by Mr. RICHARD ROBERTS.—The description of this invention is rather complex, having reference to drawings; its peculiarities are these:—Two chain-wheels or pulleys, loose on a shaft, are provided with studs or projections on their peripheries, to prevent the chain from slipping. The pulley is placed on a stud in the framing, under which pulley the chain also passes. A hollow weight to ascend and descend with the tide, and a counter weight heavy enough to hoist the weight at first alluded to, and preserve the tension of the chain whilst the tide is rising, are provided, the hollow weight being sufficiently heavy to hoist the other two during the ebbing of the tide. Whilst the hollow weight is rising with the tide, one of the pulleys rotates, and carries with it ratchet clicks over the teeth of a wheel, whilst the chain passing from the hollow weight to one of the other weights just alluded to, allows the latter to descend, and the clicks upon one of the pulleys, by operating on a ratchet-wheel, to effect the rotation of the shaft, the weight operates upon the shaft, to which is attached clock-work, or other mechanism. During the ebbing of the tide, and consequent descent of the hollow weight, the weights and counterweight are made to ascend and descend in an equal and corresponding ratio. During both changes of the tide the weight descends, and maintains by its gravitation the motion of the clock-work or other mechanism, until the influx or efflux of the tide rewinds it.

[*To be continued in next week's Mining Journal.*]

From the report of Prof. Phillips, it appeared that during the present meeting of the association there had been present—Old life members, 277; old annual, 94; new life members, 11; new annual, 32; associates, 489; ladies, 287; and foreigners who had arrived by railway, 32—total, 1122 persons; from whom £951 9s. 9d. These numbers had only been exceeded twice at any meeting of the association which had been held since they assembled in Birmingham 10 years ago.

IVORY AS AN ARTICLE OF MANUFACTURE.—At the meeting of the West-Riding Geological and Polytechnic Society, Mr. Dalton read a paper on this subject. He said there were several sorts of ivory, differing from each other in regard to composition, durability, and external appearance, and also in value. The principal sources from whence ivory was derived were from the western coast of Africa and Hindostan. Camaroo was generally considered the best, on account of its colour and transparency. In some only could it be discovered even at the outside of the tusk whether the best tusks the transparency could be discovered even at the outside of the tusk whether the best tusks the transapt to be decived with regard to transparency, because the Gentlemen were mislead them by making it transparent by a process of his own manufacturer could of time would soon indicate the deception. It was as well not to have the most transparent kind; for if they got the genuine article, the finger on having what brown at first, it would eventually become white. The African somekind of which the best cutlery was made; and though its degree of transparency was not so great as the Camaroo, it was sufficiently beautiful in its colour and fineness of grain as to render it suitable for the best kind of cutlery. But there was a third description, called the Egyptian, which had lately been brought into this country, which was 15 per cent. lower than the Indian, but was very wasteful in working. Mr. Dalton next gave a description of the specific gravity of the different kinds of ivory he had referred to. He had been furnished with an analysis to show the relative amount of animal matter in the three principal varieties of ivory. The African showed a proportion of animal over earthy matter of 101 to 100; the Indian, 76 to 100; and the Egyptian, 70 to 100. Thus, though the composition was much alike, yet there were those differences between the animal and earthy matter. He also showed the difference as to the quantity of dust used in the manufacture of gelatine. With respect to the increase in the manufacture of ivory, he said that it was now within the memory of man that there were not more than 15 per cent. workers of ivory in Sheffield; but now they were upwards of 40 per cent. Forty years ago there was only one dealer of ivory in Sheffield; at present there were five or six. The value of the annual consumption in Sheffield was about 30,000*l.*, and about 500 persons were employed in working it up for trade. The number of tusks to make up the weight consumed in Sheffield, about 180 tons, was 45,000, the average weight of each being only 9 lbs. Many weighed from 60 to 100 lbs., so that some must be very small indeed. According to this the number of elephants killed every year was 22,500: but supposing that some tusks were cast and some animals died, it might be fairly estimated that 18,000 were killed for the purpose. This was a matter which was not generally known, it being a prevalent opinion that the tusks used for ivory were such as were cast by the elephants when alive.

NEW ELECTRICAL MACHINE.—On Wednesday evening we had the satisfaction of witnessing the effect of one of Mr. W. G. Armstrong's hydro-electric machines, at the works of Mr. H. Watson, High-bridge, the manufacturer. This machine, when complete, will be the most powerful yet constructed. It was ordered by Louis Phillippe, the late King of the French, for the Academy of Sciences in Paris, just previous to his leaving the throne, and the order having since been sanctioned by the Republic, is now being forwarded to Paris. For the information of many of our readers, we may mention that this description of electrical machines is produced in this town only, having originated and been thus far perfected entirely in this locality. The boiler, which is made of very strong plates of iron, contains an interior fire for raising the steam; it is insulated, standing on plate-glass pillars 3½ feet long, placed in the form of a T, which were manufactured by Messrs. Swinburne and Co., of this town, for the purpose. The fittings upon the boiler are simply one row of 75 jets, divided into three parts, so that the machine can be used either in one-third, two-thirds, or its whole power at one time. On opening the valves to those jets, and blowing the steam through them at a high pressure, the machine is in action, and rapid and powerful sparks of electricity are produced, and can be received from any part of the boiler, and shown by a sparking rod. The electricity may be also collected in the usual way with a battery, but from the intensity of the charge and rapidity with which the electricity is produced, it is very liable to be fractured, as soon as the valve is again closed and the steam prevented escaping; the machine is then at rest, and out of action. The construction of these jets, from which the steam issues, is very peculiar; we had an opportunity of examing one, but cannot attempt here to describe it. The institution for which this machine is intended is one of the most scientific in the world, and being in possession of such a machine, which will be used entirely for scientific researches, there it a probability that discoveries of a highly interesting, as well as useful, nature in the arts and sciences will be made. The French Consul, who was present, stated that he should forward a report of the proceedings to the ministers.—*Newcastle Guardian.*

ON THE DURATION OF WOOD, AND MEANS OF PROLONGING IT.—The following are the results of experiments made with great care and patience by Mr. G. S. Hartig:—Pieces of wood of various kinds, 2 5-8th inches square, were buried about an inch below the surface of the ground, and they decayed in the following order:—The lime, American birch, alder, and the trembling-leaved poplar, in three years; the common willow, horse-chesnut, and plane, in four years: the maple, red beech, and common birch, in five years; the elm, ash, hornbeam, and Lombardy poplar, in six years; the robinia, oak, Scotch fir, Weymouth pine, and silver fir, were only decayed to the depth of half an inch in seven years; the larch, common juniper, red cedar (*juniperus virginiana*), and arbor-vitæ, at the end of the last-mentioned period remained uninjured. The duration of the respective woods depends greatly on their age and quality; specimens from young trees decaying much quicker than those from sound old trees; and, when well seasoned, they last much longer than when buried in an unseasoned state. In experiments with the woods cut into thin boards decay proceeded in the following order, commencing with the most perishable order: The plane, horse-chesnut, poplar, American birch, red beech, horn-beam, alder, ash, maple, silver fir, Scotch fir, elm, Weymouth pine, larch, robinja or locust oak. It has been proved, by repeated experiments, that the best mode of prolonging the duration of wood is to char it, and then paint it over with three or four coats of pitch. But simply charring the wood was of very little utility, as were also saturations with various salts, acids, &c.—*Revue Horticole*

THE RAINBOW.—The origin of this familiar phenomenon is thus explained by Dr. Thomson:—If a solar ray impinges upon a piece of glass of a triangular form, technically called a *prism*, and is projected upon a white screen in a dark room, it will be separated into seven different colours—red, orange, yellow, green, blue, indigo, violet; three of which—red, yellow, and blue—may be considered as primary. The relative position of these hues is always the same—the red, or least refrangible ray, appearing nearest to, or at the smallest angle with the line in which the sunbeam falls upon the prism, and the violet, or most refrangible ray, being bent from that straight line at the greatest angle. * * * The co-existence of the following circumstances is requisite for the production of the rainbow; the sun's altitude must be less than 45°; the solar rays must impinge upon the falling rain, and the observer must interpose." The lunar rainbow arises from the same causes as the above, only the effect is less brilliant, and they are more rare.

PORT AND HARBOUR OF CHESTER—RIVER DEE.—A most important inquiry took place at the Town-hall, Chester, during the last week, before two Admiralty Commissioners. The object of the inquiry was to ascertain how far the River Dee Company had carried out its engagements respecting the maintenance of a depth of water for vessels drawing 15 feet at high water of a moderate spring tide, in this important and once flourishing navigation. It is contended by its opponents, that the company has embanked large estates from the estuary of the Dee, at the sacrifice of the navigation. The meetings were numerously and respectably attended, and among those present were—Sir A. Dalrymple, Mr. Rankine, and Mr. W. A. Provis, C.E., on the part of the company; Mr. Henry Robertson, C.E., and Mr. Robert Roy, secretary; and Mr. Marten, Parliamentary agent, representing the Chester and Shrewsbury Railway Company; and Mr. T. L. Marriott, and Mr. Hamilton Fulton, C.E., on the part of the shipping and manufacturing interests. The report of the Admiralty is looked for with much interest by all parties concerned, and the citizens of Chester are sanguine as to the Dee Company being compelled to restore the navigation to its former efficiency.

A WEAKNESS OF THE CHEST AND ASTHMA CURED BY HOLLOWAY'S PILLS.—Copy of a declaration made by Mr. C. Zeitson, of Nymegen, in Holland, dated 24th August, 1849:—"I, the undersigned, declare that I have been perfectly cured of a weakness of the chest and difficulty of breathing by the use of Holloway's pills. I had been a sufferer for years, and was unable to get the least relief from the various remedies I tried, until I took these inestimable pills, and I invite all who may be similarly afflicted to use the same remedy without delay.—(Signed) C. ZEITSON." They may be taken in all cases of old coughs, recent colds, and asthmatical affections.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

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MINING IN THE OLDEN TIMES—No. II.

In the 36th anno regni, among the remembrances of the Exchequer, is a memorandum, that John Bottwright, governor of the mines of Cornwall and Devon, complains that Robert Glover, at the command of Roger Champernown took away 144 bowls of glance ore from the mine of Bear Ferris, valued at 15*l.* 6s. 8d., and made profit of the same, without anything allowed to the king—to the king's damage, 100*l.*—thereupon desiring judgment of the court against the said Champernown, notwithstanding that the mine was found in his ground. In the same year he gives and grants to Richard, Duke of York, all his mines of gold and silver within the counties of Devon and Cornwall, to hold at the pleasure of the king for 21 years, with a clause to free and indemnify the miners, without impediment of the king or to his subjects, wheresoever the said mines shall be found within the said counties. Edward IV., Dec. 20 anno 8, by letters patent granted to Richard, Earl of Warwick, John, Earl of Northumberland, and others, all mines of gold and silver on the north side of the Trent, within England, and all mines of lead holding gold and silver in the parts aforesaid (agreeing with the owners of the soil), to hold from the Feast of the Purification next for 40 years, paying to the king twelfth part of pure gold and silver, and the lord of the soil a sixteenth part, as they grow. The same king, July 30, 12th anno regni, granted to Thomas Lynne, William Mariner, and Simon Pert, power to dig and search for copper, holding silver or gold, for the mines within the counties of Somerset and Gloucestershire, of lead ore, tin, with the lord of the soil, paying to the king term of five years, and to agree with the lord of the soil, paying to the king every eighth bowl of rich ore, to agree, and all officers, &c., to be assistant. In 15th anno regni, 23d March, he granted to his brother Richard, Duke of Gloucester, Henry, Earl of Northumberland, and others, the mines of Blanch lands, called Shildane, in Keswick, in Cumberland, and the copper mine near Richmond, in York Fetchers, the mine, to hold from Lady-day next, for 15 years, paying the part net, to the lord of the soil the ninth, and to the curate of king the eighth, as they arise. On the 11th of March, 18th anno regni, upon the place of the former, he grants to Doderick Naylerswick, all mines of gold, silver, copper, and lead, in Northumberland and Westmoreland, for 10 years.

Henry VII., 27th February, 1st anno regni, by letters patent, appointed his uncle, Jasper Tudor, Duke of Bedford, and other earls, lords, and knights, commissioners, and governors of all his mines of gold, silver, tin, lead, and copper in England and Wales to answer the profits to the king, and in the same he makes Sir William Taylor comptroller, to hold from Candlemas-day following for 20 years, with liberties of court and other privileges, paying to the king the fifth part of pure gold and silver, and to the lord of the soil the eleventh part as it grows, liberty to dig and search except under the houses and castles of the king and his subjects. This appears to be the only patent issued in this reign; in the immediate reigns of his successors all mineral affairs appear to have been much neglected. It is not until 70 years after, in the reign of Queen Mary, that we find any notice taken of mines. The precept is thus worded—"*Cui Magæ Barmot, regiæ tent apud Wirckneorth, 3 Maii, annis regni, Philippi et Mariæ, Dei gratia, regis et reginæ Angliæ, Hispaniolæ, Franciæ, &c., tertio et quatro. Inquisitio magna pro domino, rege et dominæ reginæ pro minera infra Wapentage, predict, secund consuetud, ibidem usitat per sacramen.*" This inquisition was solely held at Wirckneorth, in Derbyshire, for the lead miners.

In the 7th year of Queen Elizabeth, on the 17th September, the first patent of mines was granted to William Humphreys, the Assay Master of the Mint, and Christopher Shuctz, a German, from Saxony. Previous to this, she had invited to England several foreigners, who, it states, in consideration of leaving their native places, and settling themselves in her realms with their families, to instruct her subjects in the mineral arts, then but little known, she had granted divers privileges; first, to Cornelius Devoz she granted all the alum, coperas, and all other mineral earths and metals, in England and its confines, that they should find in earth and in ground, in digging for the same without fraud; to another, Daniel Houghsetter, she joined Thomas Thurland, Master of the Savoy, to whom she granted all the gold, silver, copper, and quicksilver in the counties of Yorkshire, Lancashire, Cumberland, Westmoreland, Cornwall, Devonshire, Gloucestershire, Worcestershire, and the principality of Wales, to them and their *heirs for ever*; Humphreys and Schutz had the right granted them of mining in anywhere in England, or that part of Ireland within the English pale, except the places above recited. On the same day, William Humphreys and Christopher Schutz received license to search, dig, and mine for calamine stone, in all places in England and Ireland, it being recited that Christopher Schutz was reported a workman of great knowledge, cunning, and experience, as well in the finding of the stone called calamine stone, or *lapis calaminaris*, and in the proper use and commodity thereof for the composition of the mixed metal commonly called *latten*, and in reducing it to be soft and malleable, as also in apting, manuring, and working the same into all sorts of battery wares, cast-work, and wire, and also in the mollifying and manuring of iron and steel, and drawing and forging the same into wires and plates, as well convenient and necessary for the making of armour, as also for several other needful and profitable uses.

In consideration of these privileges, in lieu of all customs and subsidies, the crown was to receive of all gold, silver, and quicksilver that should be found pure of itself without fire or melting—the full tenth part of the same upon the finding thereof—and of all gold and silver ore to be found, holding in every 8 lb. weight, or above, in fine gold or fine silver, by the assay, the like full tenth part of all such gold and silver so to be found, and likewise the pre-emption of all the rest of the gold and silver that shall be so found pure, or shall be tried out of the ores, paying for the same, in every ounce of gold, 8d., in every ounce of silver 1d., less than her Highness, her heirs, or successors may or shall then buy, without fraud or guile, of any stranger or other her Highnesses subjects within their mint, to be paid in ready money within 30 days next after the delivery of any such gold or silver, without any further delay; and of tin in name of coinage, or other right, such portion as was then customary in Devonshire or Cornwall; and of lead, such custom and other parts as is now usual in either parts of the realm of England; and of the calamine stone, the just 20th part of the same, or the value thereof; and also of every hundred-weight of fine copper, during the first five years from the date of the patent, 2s. sterling on the 20th part, after this period, 2s. 6d. sterling on the 15th part. The crown to have the privilege of becoming the first purchasers, at a reasonable rate, then the subjects of the realm in preference to foreigners; but, in the event of too much being made, they were allowed to export it beyond the seas, paying the customs' duties which might be levied from time to time by advice of the Queen, or her successors, in council. The copper and tin to be brought frem their smelting-works 1 mile by land, or 12 by water, to be coined, or marked; and not more, at any period, than eight foreigners were to have any privileges under this patent.

On the 28th May, in the tenth year of her reign, she joined with the patentees the following noblemen and gentlemen.—Sir Nicholas Bacon, Lord Keeper, Thomas, Duke of Norfolk, William, Earl of Pembroke, Robert, Earl of Leicester, William, Lord Cobham, Sir William Cecil, Knt., Sir Walter Mildmay, Knt., Sir Henry Sidney, Knt., Sir Francis Jobson, Knt., Sir William Garrat, Knt., Rowland Hawarde, John Tamworth, Peter Osborne, Thomas Cecil, Francis Agarde, Thomas Fleetwood, William Roberts, Henry Codendam, Robert Christmas, Roger Wetherell, William Paten, Christopher Chewte, Thomas Smith, William Doddington, William Bride, George Barnes, William Humphrey, Christopher Shuctz, Antony Gammage, Richard Marten, Edmond Roberts, Francis Bartye, Richard Handforde, Edward Castelyne, John Goodriche, John Lonyson, William Williams, Christopher Birbeke, and Andrew Palmer, that they, by the name of *governors, assistants, and society for the mineral and battery works*, be, from henceforth for ever, one body politic in itself, incorporate, and a perpetual society for themselves, both in deed and name. At this period they covenanted to pay unto her Majesty certain rents, parts, shares, preemptions, &c., and her Majesty covenanted for herself, her heirs, and successors, to, and with, the said grants and corporations, to obstruct and hinder all her other subjects or others, to dig or search for the said minerals, or to use their tools, instruments, or engines, for gaining the same, or their sieves for cleansing lead ore, or the engines, hearths, furnaces, or methods of stamping, roasting, boiling, smelting, melting, or refining of gold, silver, copper, quicksilver, tin, lead, iron, and making steel; the sole power of digging and use of the calamine stone, transmuting copper into latten and fine brass, and of straining copper, iron, steel, and brass, and other metals, by mills and engines into bars, plates, rods, hoops, and wire; and mining and compounding of all sorts of minerals, earths, sands, and metals in all or any kind of mineral works that can be made out of the composition of them, and any mineral juices, and by baking, burning, or vitrifying the same to their use and profit, either into enamel, glass, or earthenware; as well to consume the lead ore, lead, tin, litharge of lead, crystal, and vitrifying sands, as to make the inferior minerals and their products to contribute towards their dangerous and chargeable undertaking; in finding out and raising other choice mineral earths, sands, and metals, and to support their numerous miners, artificers, labourers, agents, and servants, and to provide for them when superannuated and impotent in their service, and to make provisions for the infants and orphans of them. Her Majesty further covenants, by the said indenture, not only to hinder any other from stirring in their rare feats, but to overthrow, deface, and utterly destroy all edifices or engines, mills, tools, instruments, thing or things, material or stuff whatsoever erected, built or brought together, in order to imitate the said works or invention in prejudice of the said society; and to protect the members, officers, sergeants, and servants against all molestations; service of officers being impressed into the wars at sea or land, or being sued in any courts but their own; and no judge, baron, justices, councils, attorney or solicitor-general, or other minister whatsoever, to permit or suffer any action, suit, or information against them or their agents and servants, but to be aiding and assisting to the said society in all matters granted by the said letters patent and charters, as they will answer the contrary at their peril. Although express mention be not herein made, Sir William Garrat, Knt., and Rowland Hawarde, who were both Aldermen of London, were constituted the first governors.

[To be continued in next week's Mining Journal.]

FOREIGN INTELLIGENCE.

AMERICA—THE IRON TRADE.—By late arrivals, we learn that recent meetings of iron-masters at Trenton and elsewhere have attracted much attention to the present condition of the American iron trade, and the impression that the tariff of 1846 (present tariff) does not afford sufficient protection to maintain the business in a healthy state gains ground, and an increased tariff on imported iron is prayed for. It is alleged that the Trenton Iron Company is still idle, by which the loss of distribution weekly is $4000—that the New York and Erie Railway have contracted for 10,000 tons of iron from England—that at Pittsburg, out of 12 rolling mills only five are in operation—that the Stockbridge (Virginia) Iron Company stopped their operations on the 1st July, and all owing to the present tariff. The cotton manufacturers make similar complaints, and I have before me a list of 10 or 12 cotton mills stopped, as their proprietors allege, in consequence of the inadequate protection of the tariff. On inquiring, however, into two or three of the stoppages, I find that a want of sufficient capital was a chief cause. The *Albany Evening Journal* states that the directors of the Hudson River Railroad Company have actually paid to Peter Cooper, Esq., of Trenton, the large bonus of $54,000, for permission to retire from a contract entered into with him for rails! The contract was made at $67 50c. per ton, but now English rails are offered in the market in any quantity at $40 per ton. The ship, *T. B. Wales*, has just arrived at Boston from Newport, with 850 tons of railroad iron to order. This has created quite a clamour for a higher tariff.

A large meeting has been held at Newport, in favour of higher duties, and those to be specific instead of *ad valorem*. But the iron-masters of England will read the most important of the resolutions passed at a meeting of Pennsylvania iron-masters, held at Pittsburg, with interest. Thus:—"That the present depressed state of the iron trade has its origin, and is entirely caused, by the low rate of duty at which English iron is admitted into this country under the tariff law of 1846, and its injudicious *ad valorem* principles.—That five-sixths of the value of pig-iron consists of labour, and as this labour can be procured in England at less than one-third of what it usually commands in good times in this country, we in the United States can never compete with the English iron-masters, except by a reduction of labour to the pauper rates of that country, or protection from its competition.—That it is not the wish of any of these meetings, and we hope of no American, to see the rates of labour in this happy country reduced to the rates of poverty in Europe.—That to insure a different and more happy state of things among us, the labour of this country, including all its mineral and agricultural products, must be protected in our markets from the redundant labour of other countries.—That we and each of us pledge ourselves to use the utmost of our exertions to procure such protection, which can only be secured by a duty of specific values.—That it is the duty of the iron men and agriculturists in Western Pennsylvania and elsewhere, to hold meetings in their different counties and organise, for the purpose of petitioning Congress for a change from the present *ad valorem* to a system of specific duties of adequate protection to the labour of the country.—That this meeting recommend a convention of the furnace holders of Pennsylvania, Virginia, Ohio, and Kentucky, to be held at the City of Pittsburg, on Wednesday, the 21st of November next, to take into consideration all necessary and further action on the premises."

A letter, descriptive of the feeling of the ironmasters of Virginia, Ohio, and Kentucky, on this subject, has been published in the *Washington Republic*, and has the following passage:—"Will we get protection for iron from the coming Congress? If we do not, we shall be sadly disappointed. Tariff democrats are thick in this mining region. We iron men look with anxious hearts to Washington. This and last year's operations have been most ruinous. One year more of similar disasters, and Boutetourt will not have one solitary furnace man. But for our peculiar situation (in the character of our labour—our indispensably large stock, for we do all our transporting of material, and own it all), we would have suspended work. Another year I shall stop, unless assured that our Government is not our foe. So long as hand labour is as high as it has ever been in America, England can make iron, send it here, and undersell us $8 per ton." The general impression is, that the duties on imported iron will be increased in the coming session.

CALIFORNIA.—A slip from the *St. Louis Reveille*, of the 19th, brings a letter of June 15, from James Harris, at Independence, giving a rumour received from a returning California emigrant of a series of bloody engagments between some companies of the emigrants under Captain Cunningham, of St. Louis, and 200 Indians, at Fort Hall, on the plains. The first onset of the savages, on a Sunday morning, was repelled, but, while the emigrants were collecting their scattered animals, another attack was made, in which three of the company were killed. The writer then proceeds with the narrative:—"The emigrants at this time mustered all their men together, numbering from 150 to 200. They stationed themselves in and around their camp, and about four o'clock in the afternoon the Indians made their appearance, and rushed into the camp, whereupon Capt. Cunningham ordered his men to fire, which they did with great effect, killing four or five, and wounding some 18 or 20. The Indians fought bravely, and caused the emigrants to retreat some distance, killing John Ransom, Joseph Spars, Joseph Newland, and two or three others, whose names are not recollected; wounding Capt. C Todd, Gray, Dunlap, and King. In the course of half an hour after their retreat the emigrants again rallied, and with renewed vigour met the red skins in open combat, but were again repulsed; nothing daunted they approached the Indians the third time, and commenced a deadly attack, and, after a fierce struggle of 40 minutes, the red skins were obliged to retreat. When he left the camp the dead and dying Indians were still on the ground. He also says, that while the express was coming in, three waggons, that were some few miles behind the main train, were attacked by the Indians, and the emigrants completely stripped. Capt. Cunningham acted the part of a brave and daring officer; he never once flinched from his duty, but with the most encouraging and consoling words urged his men on, and, like a true Christian as well as a soldier, bade them to be merciful if possible. Messrs. Gray, Sloss, Hutchinson, and others are spoken of in the most flattering terms, and, in a word, the whole company fought bravely. We will now push forward at as rapid a pace as possible, and hope that we may overtake those ahead of us, and be of some assistance to them. We are but few in number (118), and ready for a brush with the red men any time. The information of this battle comes from an express rider, who brought the intelligence from where the other stopped off. An express rider travels from 30 to 40 miles, he then stops, and another takes his place, and so on all through. I copied the greater part of this letter from the memorandum of the rider, and hope my next will give you a full account of the fight with the Indians."

AUSTRALIA.—We have received papers from Adelaide for March and April, but which, being an intermediate date to those previously received, contain little respecting mining matters of interest to our readers—the great feature, the report presented to the meeting of the Burra Burra Company, held on the 18th April, having been given in our Journal, through the kindness of a correspondent, so early as the 4th August last, and some comments thereon (from the Adelaide papers of the 1st May), on the 25th of the same month.

The following vessels from England had reached Adelaide: The *Cecilia*, which left London on the 4th November; the *Pakenham*, with 277 emigrants, which left Plymouth on the 16th December; the *Waterwich*, which left Gurnsey on the 3d November; the *Ramilies*, with 227 free emigrants, which sailed from England on the 11th December.

We extract the following from the *Adelaide Observer* of March 17:—"Our intelligence from the western colony is brought down to the 24th February, by the arrival of the *Thomas Lord*, which touched at the Swan. There is some hope for the unhappy colony at last in the now undoubted discovery of large beds of coal near enough to the coast eastward from King George's Sound. The locality of this most important development gives new credibility to the statement of a French whaling captain in former years, who alleged that he had found good coal, and used some of it, within a short distance of the shore in Doubtful Island Bay. The Surveyor-General of Western Australia, Mr. Roe, and his party, who recently returned from a long tour of exploration, found coal in more than one locality east of Doubtful Island Bay, but the most important and available discovery was within 24 miles of safe anchorage in that bay, with some contingent possibility of water carriage. The first fragments of coal were found amongst the loose debris of a river subsequently named the Fitzgerald by the discoverers. A short search soon brought to view larger blocks, and in less than a quarter of a mile the whole surface of the river's bed presented to view the gratifying spectacle of one continuous broad sheet of veritable coal, 140 yards in length, and 20 yards wide, its further extension being concealed by banks of loose drift, sand, and shingle. The coal-bed itself seemed to lie in one uniform horizontal bed, without dip or inclination, but the adjoining shales which crop out on the river's left bank had a dip of 45° to the south-east, and precisely resembled some which had previously been seen on a river named the Phillips, although with a dip and direction somewhat different. With an axe and spade, a pit was dug to the depth of 3 feet in the mass, without any change in the appearances or depreciation in the quality of the coal. Carrying a quantity into camp, a heap was freed from the very brackish water with which it was saturated, and was then found to burn freely and with a good flame to a pure white ash, without any crackling, sparkling, or flying whatever. In appearance, some of the coal was ligneous; at a lower level, the mineral will doubtless be hereafter produced in a state of perfection. Specimens were brought away, with a view to competent examination and report."

The same paper of March 24 says—"By the arrival of the *Arpenteur*, from King George's Sound, we have news from the western colony to the 16th inst. The discovery of coal near Doubtful Island Bay is confirmed, but the discouragement of the colonists seems unabated, and the idea of removal to some more prosperous settlement is all but unanimously prevalent. The *Arpenteur* brings one settler, of 19 years' standing, who has abandoned his property in the western colony, in utter hopelessness of making anything that would be termed a sale, nor is his a solitary instance. By the arrival of the *Souvenir* we have dates from Melbourne to the 4th March, and Portland, 14th March. The new claims of "pastoral" Australia Felix to high consideration as an agricultural country are proved by the abundance and cheapness of its productions. The highest prices obtainable of late have been the following:—Wheat, 8s. 3d. per bushel; barley, 3s. 9d.; oats, 2s. 6d.; hay, 3*l.* 10s.; fine flour, 10*l.* per ton; potatoes, 4*l.* 10s. ditto.

"The small, but much-admired ketch, the *Bountiful*, from Swansea (58 tons), having left Swansea so long ago as October last, we have nothing new from Britain; but as she touched at King George's Sound, as well as at the Cape of Good Hope, we have been enabled to glean some further particulars of proceedings relative to the coal recently found in the western colony. On the 5th February, the *Undine*, in charge of Mr. Robert Gamble, sailed from King George's Sound for Doubtful Island Bay, for the purpose of procuring sufficient samples from the extensive coal-field in that vicinity. Messrs. J. Wollaston, J. Phillips, Isaac Scott, and a native, accompanied Mr. Gamble. The necessary funds and outfit were spiritedly provided by Mr. J. Hassell. Instead of sending the coal samples to England by the *Champion*, as first proposed, it is said to have been more wisely determined by the authorities to send that vessel to the Straits, so that the coal may there be tried on board one of the steamers."

SHARE MARKET, APRIL 28.—Burra Burra, 170*l.* to 180*l.*; Princess Royal, 21*l.*; Belvidere 6*l.*; Port Lincoln, 5*l.* 8s.; Mount Remarkable, 10*l.* 10s.; Paringa, 1*l.* 5s.; Adelaide, 1*l.* 2s.; Enterprise, 5*l.* 7s. 6d.; North Kapunda, 1*l.* 10s.; Prince Albert, 2*l.*; Provincial, 2*l.* 10s.; Royal Mining Company, 10s.; Victoria, 12s. 6d.; Wheal Gawler, 18*l.*; Wheal Granger, 7*l.*

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—The lode in Field's engine-shaft, sinking under the 30 fm. level, is about 6 ft. wide, 2 ft. of which, on the south part, is a regular orey course, and is improved since the last report—the north part is capel. In the 50 fm. level, east of the engine-shaft, the lode is about 4 ft. wide, principally composed of spar; the lode in the same level west is just as it has been for several fathoms driving—large, and producing some ore. The other parts of these mines are just as they have been for some time past.

BARRISTOWN.—The end driving east of the slide, over the adit level, is almost without alteration—good branches of lead mixed through it for 2 ft. wide. We are sinking Nangle's shaft under the adit level; the stopes in the back of this level are producing 8 cwts. of lead per fm. for a few fathoms in length. The stopes in the bottom of the adit are suspended for a short time, till the rise from the 16 fm. level is holed to it; in the rise the lode is greatly improved within the last few days. In the winze sinking west of the old workings, in the bottom of the adit level, the lode is 3 ft. wide, producing good stones of ore. The water is drawn out of a kiln shaft, under the 18 fm. level, and the men will be driving south in a day or two. The water is also drawn out of the 24 fm. level, at the engine-shaft, and I intend driving this end west to communicate with the kiln shaft. The stopes being idle in the bottom of the adit level, has prevented us from raising so much ore as we should have done; our present quantity dressed at surface is about 18 tons.

BEDFORD UNITED.—The ground in the engine-shaft is just the same as last reported. In the 103 fm. level, west of Burley's winze, the lode is from 3 to 4 ft. wide, producing good work; in this level east the lode is 3 ft. wide, composed of spar, mundic, and ore—a very promising lode. The lode in the 90 fm. level east is 2 ft. wide, saving work. In the 70 fm. level east the lode is from 3 to 4 ft. wide, composed of spar, mundic, and ore, saving work.

CARTHEW CONSOLS.—Since my last report we have cased and divided the engine-shaft down to the 55 fm. level, from the completion of which we have of necessity had the shaft men clearing this level north and south, but cannot as yet say anything of the lode at this point; it is, so far as we have seen, being backed up with timber. I doubt not the greater part of the ground here is whole. The 48 fm. level south has been cleared this week about 6 fms., still opening good tribute ground. I have not yet set that ground which opened so encouragingly last week, as noticed in my report of that date, nor shall I be able to do so until we hole to the middle shaft. The lode in the 38 fm. level south is about 1 ft. wide, producing every indication of our near approach to mineral, as is the end in the 28 fm. level south. It must be remembered that we could not expect to find in the re-opening an old mine the ends to be rich, but from our having rich bunches of lead and copper below these levels, and further ahead than those ends are extended, it is more than probable that we are on the verge of cutting them rich. We have now working in this mine several tribute pitches; and what will testify our improved state here more than any other thing, besides the quotation of our expected sampling, is, that not a single pitch is set at a tribute as high those in my former statement, and I doubt not, from present appearances, they will turn out well. At the Lower Mine the ground in the adit end south continues very good indeed, and very favourable for driving, and we are making very good headway towards the old mine lode, whilst the lode in this shows but very little alteration. I expect on the 24th inst. to sample about 22 or 25 tons of lead, and 10 or 12 tons of copper.

COURT GRANGE.—We have fixed the wheel, rods, and bob at Llettynhen; we have also built up the shaft, and are ready to fix the pitwork, which I have ordered to be completed. We shall get ready a temporary lift, however, to prevent delay, and get our crushers fixed as soon as possible, in order to sink the shaft, and make marketable the ore raised, and to be raised from this portion of the sett. At Penyceen, we have suffered a hinderance for some days by not being able to get a carriage of sufficient strength to remove the axle of the 45-ft. wheel; we are preparing a carriage for this purpose, and hope to remove it in a day or two. No delay has occurred in forwarding the other necessary arrangements, and our carpenters and smiths have been fully engaged—so that no time has really been lost that could be saved; and as the wheel can be put together by the time the other portions of the machinery are erected, I believe that we shall suffer but little from the delay. In the underground work, the sink from the 15 fm. level is being carried down in good ore; and the rise from the 30 is getting into ore ground. The 30 east is also in an orey lode; but I think we shall find some of the best ore ground to the westward, as soon as we can get air to drive that level. At East Pencyceen, we are preparing the wheel-pit with as much dispatch as possible. The general prospects are as satisfactory as could be desired.

CWM ERFIN.—The stope east of the engine-shaft, in the 20 fm. level, is worth 10*l.* per fm. The stopes from the 5 fm. to the 10 fm. east are worth 7*l.* per fm.; ditto from the 10 fm. to the 20 fm. level east are worth 10*l.* per fm.; ditto from the 20 fm. to the 30 fm. levels east are worth 10*l.* per fathom; ditto from the 30 fm. to the 40 fm. levels east are worth 10*l.* per fathom; ditto from the 40 fm. to the 50 fm. levels east are worth 10*l.* per fathom. The 10 fm. level, east of the whim-shaft, is worth 7*l.* per fm. The 20 fm. level, east of Robert's winze, 25 fms. east of the whim-shaft, is worth 10*l.* per fm.; ditto, west of ditto, is worth 8*l.* per fm. There is a fair supply of water at the present time, and all working well.

DARREN.—We have not yet cut the lode, or, rather, come under the ore seen in the levels above, in our cross-cut, but are expecting to do so shortly. We put two men to stope down part of the lode, and in doing so have found a very good lode—worth from 10*l.* to 12*l.* per fm.; we have now put them to stope part of the lode further on, when, if we are successful, we shall have a good mine, and hundreds of fathoms to work away without machinery, excepting for the dressing department.

DYFNGWM.—The water was in fork on Friday night, and the men in the west end worked two cores last week. The six men in the bottom of the level began this morning, where I mean to put in a small pump. I put four others to stope down the side of the level north, 9 ft. long, 3 fms. east of the winze, where we have found some more lode, and good stones of lead. I hope to continue draining every day for this week; of the bad run in the adit I hope the worst is over, and we shall soon get to see the steel ore stopes. At Cyfarthfa, two men and two boys, west of the cross-course, have almost completed their stope as far as I think necessary to the river—a good lode of lead in the bottom; the east end is taken by four good men, and they, no doubt, will get through the hard bar in 2 or 3 fms. driving; the end at present is without ore, in consequence of the horse of capel coming in from the south; the end to-day is looking more kindly; in the stope over the stull we have lead in the gossan 2 ft. wide. Jones's stope, with two men, is looking very well; we can make good returns at 10s. in 1*l.* The lobby and wheel-pit will be cleared to-morrow; the masons will begin to build the stone-work, and hope to complete all in one week. The sawyers are cutting timber, and all getting on satisfactorily. I have set the ore and halvans to dress as it came out of the mine, at 40s. per ton, 126 lbs. to the cwt. We have 4 tons clean, and the dresser says he will get 3½ tons more this week.

EAST BIRCH TOR (TIN).—Since I last wrote, we have driven many fathoms on the course of No. 5 lode. I am glad to say that we have made a good discovery for about 15 fms. in length, and I see that all the lode is standing 8 fms. high, and looking very prodnctive, and I believe will produce a large quantity of tin; this lode continues to go down in the bottom of the adit. Our men are now putting in stull timber, and making preparations for taking down the lode. I have also the pleasure to inform you, that the tribute backs, near the engine-shaft, on No. 4 lode, continue to improve, and that all the other workings on this mine are progressing very satisfactorily.

EAST CROWNDALE.—The shaft is now about 4 fms. below the 17 fm. level; the ground is hard for sinking, and the water rather too much to sink with speed, without a lift; therefore, we shall lose no time in getting the rods and pumps attached to the engine. The lode in the shaft is better defined, but not rich for tin. The stopes are poor generally, although we have good stones of tin at times, but not enough to pay; therefore, I recommend suspending the stopes until we reach the 28, and see if we have an improvement at that depth. We have costeened Willcock's field south, and find the Anderton lode about 25 fms. south of our works; and according to the difference of underlay, we have about 10 fms. to drive in the 17 fm. level cross-cut to cut it, which will cost—say, 60*l.* The character of the lode does not exactly please me, it being a halvan lode; it is large, and runs parallel with ours, and not without a little tin, and is quite the character there that they get their tin from in Anderton. I hope to sample to-morrow, but the exact quantity I cannot give you, the parcel being yet abroad. I fear it will be under our calculation; it does not yield in tin according to the quantity of wirth, being so corrupted with mundic and iron.

ESGAIR LLEE.—The south part of the lode, in the winze under the shallow adit, which we are sinking on, is not looking quite so well as when last reported, but from the general appearance of the lode, I think the failure to be only a partial one. The north part of the north lode, in the deep east, is improved since my last report, with an increase of water in the present end. The south lode in the stopes, in the bottom of the deep adit, east of the engine-shaft, is much the same as last reported, and will yield, on an average, about 6 cwts. of ore per fathom.

EXMOOR WHEAL ELIZA.—The north lode, at the 24 fm. level, continues just as when last reported on. The cross-cut south is progressing about 6 ft. per week towards the south lode. There is nothing new of any importance.

HEIGNSTON DOWNS.—The ground in Bailey's engine-shaft continues hard. The 35 fm. level, east of the cross-cut, is without important alteration, and still yielding good stones of grey ore in the gossan. The lode in the 20 fm. level, west of Hitchins's shaft, is rather small at present, but the indications are such as to warrant a speedy improvement.

HOLMBUSH.—The lode in the 120 fm. level south is 4 ft. wide, producing 5 cwts. of lead per fm.; the ground in the 120 fm. level cross-cut south, towards the flap-jack lode, is very favourable indeed, and should it continue throughout the remainder of the month, 8 fms. will be accomplished. The lode in the 110 fm. level south is 3 ft. wide,

nd will produce 4 cwts. of lead per fm.—ground favourable for exploring. The pitch in the bottom of the level is still productive. The flap-jack lode, in the 100, east of the great cross-course, is 20 in. wide, composed of spar, mundic, killas, and spots of copper ore. I may also mention, that every effort is being made to secure a vessel to ship off the parcel of lead ore to Newcastle-on-the-Tyne, purchased by Messrs. Pontifax & Wood

KIRKCUDBRIGHTSHIRE.—The lode in the 62 fm. level east is 4 ft. wide, a kindly spar and killas, with a good stone of ore in the bottom, yielding 5 cwts. of lead to the fathom; ditto in the 62 west is improving in size a little, and a kindly spar coming in the end, spotted with ore. In the 50 end east the lode is still principally killas; in the 50 west it is 3 ft. wide, but scarcely any ore in it yet. Keith's shaft also is without alteration; the lode is from 5 to 6 ft. wide, principally killas, with regular walls.

MENDIP HILLS.—I stated in my last report that it was intended to smelt the slags we had then on hand during the past week, in which we have been disappointed, in consequence of the new straps for driving the fan not being forwarded from London, as promised. We have now, however, a very large pile of good quality slags prepared for the furnaces, I hope sufficient to keep them engaged one week, which we shall commence smelting as soon as the straps arrive. We continue to press forward with our different operations at Ubley as fast as possible; the engineer is at present engaged in fixing the drum for drawing the waggons up the incline plane, and the carpenters in laying down the railroad, &c. At Charterhouse we are still extending our cutting towards the eastern part of the valley. The bed of slag stuff which we are at present opening through is about 16 ft. thick, producing some good quality slags.

RHOSWYDDOL.—The air has improved so much in Prosser's level, that the men are able to work their full time comfortably; there is no change in the appearance of the lode. In sinking the Augustus lode, the ore improves in quality and quantity; in driving also on the same lode, in Smithy level, we have a little lead. We have only one man at present driving the cross-cut from Smithy level to Augustus lode, the other having met with an accident, which will disable him for a few days. The Smithy level end is still orey; the water is also quite as strong; the roof in the end produces good ore. The 17 fm. level end has not improved; the new stope, in the back of this level, yields excellent ore; the western stope also continues good. The stopes in the back of the 10 fm. level continue productive, without any change; Lewis's stope, in the bottom of this level, is quite as good as before; the stope in the east end, in the bottom of this level, has improved considerably in going down on the lode; the improvement in the adit level stope, noticed in my last, has continued. On Friday, an accident befel our crushing-mill; the driving cog-wheel was smashed to atoms, caused by a flaw in one part of it. A new one will be immediately cast and replaced, so as to begin crushing again on Wednesday, I expect. The dressers and washers in the upper dressing-floors will not be at a stand till then, as they have plenty of stuff to work upon, exclusive of the crushed ore.—*Sept.* 18.—I have several changes to report upon since my last. The smithy level end has improved, the ore is much better, and has a more promising appearance. I am glad to say the cross-cut going south from the smithy level has intersected the Augustus lode, and it produces promising stones of lead ore. We had to cross 8 fms. before we succeeded in cutting it; its direction is at an angle of 45° from the north lode to the south, or main, lode; after cutting through it, we shall drive along the course of the lode to the main lode; we expect to find orey ground to work upon from one lode to the other. We cannot yet judge of its produce till we cut through it. The 17 fm. level has considerably improved; it is now better than ever, and the two stopes are very good—indeed, this level, in every part, looks exceedingly well. In the other levels and stopes there is no change, except in the bottom of the adit level, which is poorer. We have been disappointed in not receiving our cog-wheel from the foundry, but we have heard that it is ready to-day—the carrier has gone for it. Our produce at present is not quite 6 tons per week—we are only safe in saying 5 tons; at present we have every stope occupied. I hope, by the end of this month, to let a new bargain on the Augustus lode: a few stopes here, and a stope or two in Prosser's level, would soon enable us to double our present quantity.

SOUTH WALES MINES.—At Dolwin, the south, or the Frongoch, lode, in the deep adit, east of the Rhydnet river, is much the same as last reported.

SOUTH WHEAL TRELAWNY.—The engine-shaft is in course of sinking below the 40 fm. level, with nine men—ground much the same as last mentioned, still favourable, composed of a deep blue killas strata: water just the same as usual—things in a regular course of working.

TRELEIGH CONSOLS.—At Garden's engine-shaft the ground is hard. In the 90 fm. level, west of ditto, the lode is 2 ft. wide, with stones of ore. In the 80 fm. level, west of ditto, the lode is 20 in. wide, worth 6*l.* per fm.; ditto, east of west cross-cut, the lode is 2½ ft. wide, worth 8*l.* per fm. In the winze below the said level, the lode is 18 in. wide, with stones of ore. In the 60 fm. level west the lode is 18 in. wide—poor. At Wheal Parent, the engine-shaft is below the 30 fm. level south of the lode. In the 30 fm. level, east of ditto, the lode is 2 ft. wide, worth 15*l.* per fm.; ditto west, the lode is 20 in. wide—good stones of ore. In the rise in the said level, the lode is 2½ ft. wide, worth 14*l.* per fm. In the winze below the 20 fm. level, the lode is 18 in. wide, with stones of ore. In the whim-shaft, under the 12 fm. level, the lode is 15 in. wide—poor. In the middle lode, at Nicholson's shaft, under the adit, the lode is 1 ft. wide—poor. In the adit east the lode is 15 in. wide, with stones of ore.

WEST WHEAL JEWEL.—In the 85 fm. level, west of Williams's cross-course, on Wheal Jewel lode, the lode is worth 3*l.* per fm. In the 70 fm. level, west of Williams's cross-course, on the same lode, the lode is producing stones of ore. In the 47 fm. level, east of Williams's cross-course, on the same lode, the lode is worth 5*l.* per fm. In the deep adit, west of Williams's cross-course, on the same lode, the lode is unproductive; in the deep adit, west of Tregoning's shaft, on Tolcarne tin lode, the lode is producing stones of tin. The men that were rising against Tregoning's shaft, in the back of the 12 fm. level, are put to drive a cross-cut south, at the shallow adit, west of Tregoning's shaft, to cut a tin lode that we have seen further south, where tin has been risen—set 2 fms., at 7*l.* 7*s.* per fm. In the stopes in the back of the 12 fm. level, west of Pryor's winze, on Tolcarne tin lode, the lode is worth 10*l.* per fm.; in the stopes east of this winze, the lode is worth 9*l.* per fm.; in the stopes in the bottom of this level, east of Tregoning's shaft, the lode is worth 16*l.* per fm.; in the stopes in the bottom of this level, west of Tregoning's winze, the lode is worth 18*l.* per fm.—working on tribute.

WHEAL HENNOCK.—The experiments which I have made with various samples of the Hennock iron ores, subsequently to the analyses made and annexed to my report on the mines in July last, fully corroborate the truth of my assertion—that the ore might be readily smelted with the Bovey wood-coal, or lignite, of which a superabundant supply exists in the locality, whence the samples sent you were taken. No good results, however, can possibly be obtained by using the minor stratum of inferior coals, containing traces of sulphur, and by far too much ash—these must be thrown aside, and the superior be selected. I am inclined to believe, that if the parties now engaged in raising the coals for the use of the Pottery were to erect machinery to drain the pits, to enable them to sink deeper, they would find an article approaching anthracite. The samples of iron sent herewith were produced from the ore taken from the 10 acres field, consisting of the carburet, accompanied by protoxide of iron, which was very easily deoxidized and reduced, by using a proper admixture of the wood-coal and lime. No. 1 sample was iron of very superior quality, well calculated to make good steel; but No. 2, having been smelted with the common coal, is crystalline and brittle. I have seen similar beds of iron in the Birch Tor and other mines, the lodes in which traverse a granite formation, and have been found very productive of tin, and tin ore will, no doubt, be the predominating mineral in these mines in depth, on which there is no royalty; and I doubt not there is sufficient iron on the backs of the lodes, near the surface, to pay a good profit above the cost of their proper development.

WHEAL MARY ANN.—There is but very little done in sinking Pollard's shaft since my last report, the sumpmen having been employed in altering the lifts. The lode in the 50 fm. level, north of the shaft, is 3½ ft. wide, and worth 4*l.* per fm.; in the same level south it is split in branches, and these branches are spotted with lead. The lode in the 40 fm. level, south of the shaft, is also split up, and the east, for 4 ft. wide, is all impregnated with lead; the winze under this level, north of the shaft, is holed to the 50 fm. level. The lode in the 30 fm. level, south of the shaft, is improved in size since my last report, being now 1½ ft. wide, but is still unproductive. The lode in the 15 fm. level, south of the shaft, is 1 ft. wide, composed of gossan, can, and barytes. The lode in the 60 fm. level, south of the boundary, is 2½ ft. wide, and worth 10*l.* per fm. Barratt's shaft is sunk 6½ fms. below the 50 fm. level, where the lode is 4 ft. wide, and worth 20*l.* per fm. The lode in the 50 fm. level, south of the shaft, is 3 ft. wide, and worth 8*l.* per fm. The stopes generally throughout the mine are looking very well. We sampled on Saturday last two parcels of ore—viz., No. 1, computed 66 tons, and No. 2, 50 tons.

WHEAL TRELAWNY.—In the 82, north of Phillips's shaft, the lode is 4 ft. wide, worth 5*l.* per fathom; in this level south, the lode is also 4 ft. wide, worth 5*l.* per fathom, and still of a very promising character. In the 72 north, the lode is 3½ ft. wide, and worth 7*l.* per fathom; in this level south, the lode is 3 ft. wide, worth 10*l.* per fm.; in the winze sinking under this level, north of the shaft, the lode is 3½ ft. wide, worth 10*l.* per fm. In the 62 north, the lode is 5 feet wide, worth 16*l.* per fm. Trelawny's shaft is down 4 fms. 4 ft. under the 72—still good ground for sinking. In the 72, north of this shaft, there is no alteration; in the south end the lode is 4 ft. wide, worth 7*l.* per fathom. In the 52 north, the lode is 4 ft. wide, worth 12*l.* per fathom. At the north mine, in the 55, north of Trehane, the lode is 2 ft. wide, worth 8*l.* per fm. In the 50, north of Smith's shaft, the lode is 3 ft. wide, worth 6*l.* per fathom; in the south end, the lode is 3 ft. wide, and worth 10*l.* per fm. In the 40 north, we have cut the cross-course, and are now driving west to find the lode on the other side of it. In the stopes throughout the mine there is nothing new to notice. We shall sample this week silver-lead ores, computed 108 tons.

WHEAL PENHALE.—My report of last week was not much in detail, and though, from a breakage in the engine, and the ineffectual state of the boiler from leaking in many places, our position is but little altered since, I will endeavour to give you as full a statement of the mine as I can. On Sunday night last we had a breakage in the gear-work of the engine, which caused her to be idle about seven hours, in which time the water rose some fathoms in the mine. The breakage having been repaired, and the engine again set to work, it was soon discovered that the boiler leaked badly, inasmuch that we could not again raise steam sufficient to fork the water out, and our only step was then to stop the boiler, and repair it as soon as possible, which was not completed until five o'clock yesterday evening—consequently, we have done nothing underground, and but a very limited amount of dressing this week. During the time the engine was idle, we attached to her a balance-bob, to ease her of her load, which we find to be materially beneficial, not only in her working, but in the saving of coals also. As stated in my last report, the engine-shaft is sunk about 5 fms. below the 20 fm. level. It will be remembered that my reports of late noticed a very large lode in it, which, it is now very evident, has been two lodes in conjunction—they having at the present bottom separated, and are now about 6 ft. distant; consequently, we are now obliged to abandon the pursuit of the eastern one, which shows very well indeed for lead, and carry with us in sinking the western one, which is more productive in copper. These two lodes, when in conjunction, appear very much to disorder each other, and more productive when apart; and though, for the present, we abandon pursuit of the first, we shall again work it at the 30 fm. level by aid of a cross-cut, and shall then be enabled to drive four ends in this level at the same time, which will materially improve our prospects. The lode in the 20 fm. level end north is, by means of a slide, hove to the east, which I expect to regain again in a few days; at the point of the heave it looks very well for lead; the lode in the south end, in this level, is making again south of the elvan course which crossed it. The lode in the bottom of the winze, in the 10 fm. level north, is yielding good work for copper; this winze will, I expect, be holed in a fortnight, and will lay open good tribute pitches; the winze in the bottom of the 10 fm. level is holed to the 20 fm. level. I would next refer myself to the sampling, which is intended to take place on the 24th inst., which I estimate will be about 23 tons of lead and 32 tons of copper. In taking a retrospective view of the mine altogether, I cannot pronounce her otherwise than looking very well, especially from the very probable result of the two lodes in the engine-shaft, although the ends in the 20 fm. level are at present in a disordered state, which is an everyday occurrence in mining.

WHEAL VINCENT.—We have finished casing and securing the shaft on the south lode, and have again commenced drivingthe 10 fm. level east, as well as to hole the piece of ground between both the shafts. We are now in a position to commence stoping the lode, both back and bottom, and am happy to state that, if it continues as at present, the mine will pay its own cost. After this month, as we get on in opening deeper levels, so as to get some length of backs, there is every reason to expect the mine will amply reward the adventurers for their outlay.

FOREIGN MINES.

ALTEN MINES.—The following is the estimated produce for August:—

Mines.	Tons of Ore.	Per Cent.	Fine Copper.
Raipas	70	6	4·20
Old Mine	70	6	4·20
United Mines	30	5½	1·65
Michell's	25	7	1·75
Mancur's	3	5	0·15
Ryper's	5	5	0·25
Carl Johan's	10	7	0·70
New Lodes	4½	6	0·27
Total	217½		13·17

Mining Report from the 15th August to the 4th September.

Raipas.—Some improvement can now be noted in the stope north-west of Monk's shaft, in the 20 fm. level, where the quality of the ore is much improved; but the extremely hard and compact nature of the ground prevents the men from making such good progress with the work as we had anticipated. In the other parts of the mine there has been but little, if any, alteration; the tributers continue to improve and make advantageous returns of a better quality from the old stulls, halvan heaps, and from some of the small veins at the surface. We are now busily engaged in returning the produce of this mine to the smelting-house, and hope the next delivery note will show a still better result than the present.

United Mines.—The workings on Ward's lode have latterly been subject to fluctuations, and having more profitable work at the other mines, on which to employ the people during the remainder of the autumn, we considered it advisable to suspend further operations at this place until the winter. The back of Woodfall's lode yields remunerative returns on tribute, and the workings generally hold out very favourable indications.

Old Mine.—The tribute returns continue satisfactory, and the general prospects in the old workings are equally good; whilst a very flattering discovery, which promises to become of great importance, has been made to the north-east of Bergmester's, where it is presumed that a continuation of the main lode has been found, and which had been sought after in this direction during the last 15 years, but hitherto unsuccessfully: in addition to this, another lode, not less promising, had been found about 40 fms. north-west of Bergmester's. We are uncovering and exploring these places with all possible speed, in the hope of being able to get under cover before the winter sets in. The adit level, towards Bergmester's, is making fair progress, and, on the whole, we have every reason to feel great satisfaction with the improved prospects of this mine.

Ryper's.—No improvement can yet be noted. The pitches are generally poor, and we can scarcely anticipate increased returns at this advanced season, and with our limited forces for exploring ground.

Mancur's.—The operations at this mine are still confined; but they yield fair returns of ore.

Michell's.—The workings have latterly been confined to Nellen's lode, and tribute operations at the surface, from which satisfactory returns have been made. In this mine, within the last eight days, we have also made a very promising discovery of a continuation of one of the lodes to the south-west of the old workings, which holds out unusually flattering indications; and some good parcels of ore have already been produced. We employ all the hands that can be spared in exploring and opening the back of the lode; about 100 fms. have already been laid open, and good ores are found in the greater part of the distance. In the event of this lode being traced over the face of the precipice, we propose commencing an adit at the foot of the mountain, which will open ground, and explore the lode at a depth of many fathoms; the prospects here are also improved.

Carl Johan's.—The produce has experienced a falling off, in consequence of the hard nature of the ground; but the prospects still continue favourable. The accompanying note of delivery for June and July, amounting to about 30 tons of fine copper, I hope will prove satisfactory.

ST. JOHN DEL REY MINES.—*Morro Velho, July* 8.—Produce for June, 21,985 oitavas, equal to 211·21 lbs. troy—viz., 21,958 oits. from 6127 tons of ore, yielding 3·58 oits. per ton; tribute from Feixos, 27 oits.—total oitavas, 21,985 oits. The stamps working during the month average 94·4 heads. The supply of stone is without much variation; during the last eight days, indeed, it has somewhat fallen off, owing to the stoping in the middle cachoeira being just now checked, while the sinking in the sump is being pushed with increased energy; but this is only temporary, and will be fully atoned for by-and-bye, when more stopers can be put in the middle cachoeira. During the month of June we have been obliged to bring in from the refuse heap, and to stamp nearly 500 tons of stone.

Cost for June, Rs. 45,816 011, at 25½d.	£4915 13 6
Produce, 21,985 oits.; less duties, 7 per cent., 1539—net oits., 20,446, at 7s. 7½d.	7773 14 9
Profit	£2858 1 3

[From the *Plymouth Journal.*]

PLYMOUTH WHEAL YEOLAND.—The lode in the engine-shaft is still 7 ft. wide, and maintains the same character of a kindly lode. It is producing the same quantity of tin that it has since we have been sinking below the 12 fm. level, the shaft being nearly down to the deep adit level. We expect to commence driving east and west in the course of a few days, when we hope to be raising tinstuff for the stamps.

TAVISTOCK CONSOLS.—The lode in the adit end east is about 3 ft. wide, composed of mundic, peach, and spar, and is very kindly.

WHEAL ANDERTON.—In the 80 west the lode is good, and in the 80 east the level appears to have passed through the cross-course and disordered ground, and should this prove to be the case, the lodes to the east of the cross-course will be shortly cut.

WHEAL FRANCO.—The lode in the 62, east of the engine-shaft, is large, and of a very promising character, producing good stones of ore; the lode in the 62 west has been disordered by a cross-course. The lode in the winze, under the 47 fm. level, east of the cross-course, is large and orey. In making a rise in the back of the 32 east, the lode is found to be large and orey, and considerable returns are being made from this place: 126 tons 15 cwts. were sampled for the last month.

ALFRED CONSOLS MINING COMPANY.

A special meeting of shareholders was held at the mines, on the 6th inst.—Mr. H. NOELL in the chair,—when Mr. Samuel Grose, the engineer, having reported that an engine, equal to an 80-in. cylinder, would be of sufficient power to unwater the old mine of Great Wheal Alfred, it was resolved, that an engine of such power, with a steam-whim and all suitable pit-work, be forthwith purchased, and every other requisite necessary for placing the mine in an effectual state of working.—The meetings in future are to be two-monthly, and to be held on the mine.—Capt. WHITE having explained that, in consequence of his other engagements, he should be unable to give the mines the attention required, and having expressed a wish to relinquish his situation at the expiration of two months from this time, Capt. John Trebilcock was appointed manager. A committee, consisting of Messrs. T. Field, R. R. Michell, N. Harvey, and R. Nicholls, was appointed for conferring with the purser, engineer, and agents, for purchasing such materials as may be required, and Mr. Field having submitted an offer of certain materials calculated for the mines from Capt. T. Richards, the committee were authorised to make an arrangement with him for their purchase, or any part, as they may think proper.

At a special meeting, held at the offices in London, on the 14th inst., the above resolutions were approved and confirmed.

EAST TAMAR MINING COMPANY.

The two-monthly meeting of shareholders was held at the offices of the company, Threadneedle-street, on Thursday last, the 20th inst.—JAMES Y. WATSON, Esq., in the chair.—The CHAIRMAN having read the advertisement convening the meeting, and transacted the usual routine of business, submitted the statement of accounts, which showed a balance in hand of 1140*l.* 3*s.* 11*d.*, the liabilities being 1379*l.* 7*s.* 1*d.*, and the assets 3025*l.* 16*s.* 6*d.*—The following report, from the manager, was read to the meeting:—

Sept. 19.—My reports for July, August, and September, will have furnished you with full particulars of the operations, and of the state of the mine, during those months, and I now furnish you with reports of what has been done since, and the state of the mine this day. The shaft is sunk 5 fms. under the 80 fm. level; we purpose sinking other 4 ft., and then put in cistern, &c., and fixing plunger-lift. The ground is easier for sinking, and the lode continues to improve. In the south end, in the 80 fm. level, the lode is 3 ft. wide, 1 ft. of which is good saving work, and the present indications are such as to warrant an expectation of its improving; in the north end, in this level, the lode is tight and unproductive; it is, therefore, suspended, and we do not intend to drive northward until we reach next level, where we expect to have a better lode and easier ground. At the south end in the 70 fm. level the lode has continued to improve; it is now 4 ft. wide, and worth from 7 to 8 cwt. of lead per fm. In the north the lode is also improving; it is 3 ft. wide, and worth 4 cwt. of lead per fm.; and we are getting under ground that was much more productive in the 60 fm. level. At the south end, in the 60 fm. level, the lode is 3½ ft. wide, and worth 5 cwts. of lead per fm. In the north end the lode is 20 in. wide, and worth 7 cwts. of ore per fm., and is increasing in size and productiveness. The pitches are looking quite as well as for some time past, and I am happy to say that, notwithstanding we have had so much sickness, and suffered so severely from cholera, there will be no falling off in the returns. Gullett's shaft is collard up, and the foundation for the engine-house nearly cleared out; we hope to commence the building next week.

SOUTH TAMAR MINING COMPANY.

The usual two-monthly meeting of shareholders was held at the offices of the company, Threadneedle-street, on Thursday last, the 20th inst.—The financial statement presented, showed balance of 68*l.* 18*s.* 9*d.* in favour of company; the liabilities were stated at 1066*l.* 7*s.* 7*d.*, and the assets 1950*l.* 2*s.*—A call of 2*s.* 6*d.* per share, deemed necessary for carrying out the present operations, was resolved on.—A resolution was also unanimously adopted, tendering the thanks of the company to Mr. James Wolferstan, the manager of the mines, and to Messrs. Jackson and Sleman, surgeons, for their kindness and attention to the men, as well as their families, during the prevalence of the cholera in the locality.—The following report, from the manager, was read:—

Sept. 19.—In handing you a report of the operations and state of this mine up to the present time, I beg to refer you to my previous reports of July, August, and September, which will have fully informed you of all particulars up to our last setting day. Since then the shaftmen have been employed in putting in bearers and cistern, and fixing plunger-lift in the 10*½* fm. level—this work will be completed to-day. In the 101 fm. level, both north and south, our operations have been very limited, owing to the work going on in the shaft. In the south end, in the 90 fm. level, the lode is diminished in size, and is not so productive as it has been for the last 20 fms., but still we are laying open ground that will sett at a low tribute; the pitch in the back of this level (the limit of which is 14 fms. behind the end) is very much improved, and, in all probability, will yield twice as much ore as it did last month. In the south end, in the 80 fm. level, the lode is 2 ft. wide, and worth 7 cwts. of ore per fm., and opening excellent tribute ground; the pitches now working in the back of this level are rather more productive than they were last month. In the south end of the 70 fm. level the lode is 2 ft. wide, worth 6 cwts. of ore per fm. The lode in the back of the 30 fm. level is 4 ft. wide, composed of capel, intermixed with ore to the extent of 10 cwts. per fm., but a great portion of it must be stamped. The pitch in the back of the 70 fm. level is looking well, and the men can get fair wages at 6*s.* in 11, their present tribute. The parcel of ores sold on the 21st ult., computed 51 tons, was shipped and weighed yesterday, and proved to be 52 tons 4½ cwts. Our next parcel will, in all probability, be 10 tons more. The crushing machine is completed, and is all that can be desired. The dressing floors, which have been greatly extended, are nearly completed, and will be fully adequate to our requirements when the mine shall be developed. The surface work generally is in a forward state, and I hope to have all that is at present necessary finished before the winter sets in.

[We understand that the exertions of Mr. Wolferstan have been most indefatigable, in affording assistance to the miners and their families during the prevalence of the awful visitation in the neighbourhood, and where the mortality has been very great. We also learn that a committee was formed for the purpose of obtaining subscriptions from the shareholders, to present that gentleman with some testimonial, as a mark of their esteem for the philanthropy and disinterestedness manifested on the melancholy occasion.]

ASTURIAN MINING COMPANY.

SIR,—Having seen a statement in your valuable Journal of the 1st inst., made by Mr. Hemming, the chairman, at a meeting of the company, held on the 25th August, complaining of the mismanagement of their coal mines in Spain, I beg to state, that I have been agent for the company in Spain four years, and had the management of the coal workings connected with their iron-works at Mieres: the other portion of their coal mines I have had charge of only a short time. Now, if Mr. Hemming will state, in your Journal, whether he means that *all* the coal mines have been badly managed, or only a portion—if so, what portion—I will fully reply thereto. I only wish the mines could be inspected by a competent person, who actually knew something about mining, then there would be no chance of such strange and unfounded statements being made by the chairman at a public meeting. JOHN JAMES.

Mieres Iron-Works, Spain, Sept. 12.

ASTURIAN MINING COMPANY.

SIR,—The adjourned annual meeting of this company is fixed for the 25th inst., when the report of the committee of investigation, and the proposals of M. Munoz will be brought before the shareholders. There can be but one opinion, that the affairs of the company are in a very complex state; and although possibly great incompetence and mismanagement may be proved, both in England and Spain, it will be well for all parties, instead of having recourse to mutual recrimination, to put their shoulders to the wheel, and endeavour, calmly and dispassionately, to see how much can be saved from the general wreck. That, in the first place, the agreements made with the Spanish shareholders were loosely concocted, does not admit of a doubt; but any one who knows the tortuous spirit and litigious disposition of that people, must see that the directors have had no ordinary difficulties to contend with. Castilian honour, it has long been known, exists but in name; while the Spaniards, forgetting the bravery of their Carthaginian ancestors, have retained, with indomitable perseverance, their "Punic Faith."

Should the proposal for the sale be accepted by the English shareholders, it will be well if they see their rights so firmly and legally secured that Spanish equivocation can have no power further to trifle with them, or illegal violence, by a series of quibbles, be enabled to wrest the small remnant that will remain from them. The conditions of the sale, as far as they have transpired, appear to be equitable and fair; but one thing is *imperatively necessary*, if an honourable arrangement is to be effected—that the new board be constituted with a majority of English directors; should this not be the case, it requires no prophet to predict that, in a very short period, pretended claims, supported by venal courts, assumed non-compliance with unintelligible legal forms, will be brought forward by the Spanish shareholders, so as to swamp the concern, and throw English interests overboard. A SUFFERER FROM CASTILIAN HONOUR.

Paddington, Sept. 19.

EMPLOYMENT OF SLAVE LABOUR IN FOREIGN MINES.

SIR,—In your esteemed paper of the 15th inst., under the article "Foreign Mines," "Bananal," the intelligence begins with an extra flourish of benevolence, in the pathetic narrative of a black man and his wife having saved up some money, bringing it, and also offering the same for the freedom of a recently born child of theirs, the amount being from 4*l.* to 5*l.* The fact is only remarkable for heading a mining report of this once most flourishing company, and brought forward by a commissioner, who has been characterised by his general inhumanity to the whites under his command. Is it not a fact, that he made the company's shopkeeper out of a man who had been previously dismissed for general cruelty, in tying up a drunken hired black man so severely tight, that amputation of an arm followed? Such is ths singular inconsistency of bringing forward such a *humane* act in the last days of the chief commissioner's acting; whilst such a gross case as that, whereby a man lost his arm and nearly his life, shows that it is only put forward at this moment to pander to the passions now existing on the subject of Brazilian slavery. It is even stated in the neighbourhood of the mine that the said slaves were, *by particular request*, ordered to enact this farce of offering to pay for the child, and were compensated for so doing. The act of freeing the child is a good one, undoubtedly—no matter from what motive it sprang; whether ostentation, self-righteousness, or kindness; yet what necessity for obtruding it in such a more than doubtful manner before the public. Are we not of old commanded "*Not to blow a horn in the market-place before giving alms*, as the Pharisees do so?" I may close my note with a quotation from Byron:—

"Shrine of the mighty, can it be
That this alone remains of thee."

Sept 18. ONE OF THE EARLIEST SUBSCRIBERS TO THE JOURNAL.

P.S.—I would ask for information, what has been the fate generally of the blacks and mullattoes already freed by this company in great numbers during 25 years? We never hear of them being employed as free labourers upon any of the establishments of this company.

ST. JOHN DEL REY MINING COMPANY.

SIR,—In consequence of erroneous representations which have appeared in public regarding the proceedings of this company at Morro Velho, the directors think it expedient to give to the proprietors a statement of the company's proceedings there, subsequent to the publication of the last annual report. The produce for the four months subsequent to that report has been as follows:—In March, 22,177 oits.; April, 22,672; May, 22,383; June, 21,985=89,217 oits., being an average of 22,304 oits. per month. The monthly average of the preceding four months was 21,731 oits. The amount of net profit at Morro Velho for the said four months, from March to June inclusive, has been 13,300*l.*, equal to 39,900*l.* per annum. The net profit at Morro Velho, for the year ending February last, was 33,333*l.*

Regarding the state of the mines, the following is an extract from the superintendent's letter of the 18th May last:—"The lode (according to Capt. Treloar's last report) never presented, as a whole, a more cheering aspect; it is not only maintaining its size and quality, but is enlarging and improving, especially at the eastern part of the Gut, and at the western part of the East Quebra Panella. At the surface, in the line of the part referred to in the Gut, the lode was only about 4 ft. wide; it is now 20 ft. wide, and in quality of the first order, yielding probably, 7 to 8 oitavas per ton. At the part referred to in the East Quebra Panella, there used to be killas; this has disappeared, and in its place we have a lode 18 ft. wide. The directors stated, in their last report, that there had been an unusual amount of sickness prevalent at Morro Velho; that the deaths among the negroes had amounted to 59 out of a population of 1106, being 5½ per cent. for the year; while, in 1847, the mortality had been only 2 6-10 per cent. The surgeon said, in reference thereto, in his annual report—"We have been visited by three distinct epidemics; two in which influenza was the prevailing disease, the third, diarrhœa; and, although neither of these periods was remarkable for mortality, yet it is utterly impossible for disease to rage to such an extent, without leaving certain traces prejudicial to the constitution and health of the subjects attacked, producing an aptitude for the conception of more active disease, and, in diminishing the physical powers, leaving the constitution less capable of resisting any further encroachment on its appliances."

From the 1st January to the 30th June, the number of deaths among the negroes has been 53, of which there have been seven women and three children. Five of the deaths of the men proceeded from accidents in the mines. The directors hope that the mortality is decreasing, as they find that the number of deaths, which in May amounted to 12, had diminished in June to seven; while, from the 1st to the 9th July, there had been but one death. This diminution of labour would have somewhat affected the amount of the returns, but that recourse was had to the pile of rejected ore. When the supply of ore is abundant, it is picked, and the rejected part thrown on the pile of rejected ore. Whenever, from any cause, there is a temporary deficiency of supply of ore for the stamps, this pile is resorted to. In the month of March, out of 6050 tons of ore stamped, 191 tons were taken from the "rejected" pile. In April, 691 tons out of 6075. In May, 656 tons out of 6583. In June, 473 tons out of 6127. The directors have no doubt, that as soon as the present unhealthiness shall have passed away from Morro Velho, the superintendent will be able to hire more negroes. By the last advices he had engaged six more.

The directors think it right, as an act of justice to the superintendent at Morro Velho, to repel, in the strongest terms, the insinuations which have been made against him—that the negroes are overworked, and that this mortality has been the consequence. They believe that no one can have watched over the negroes with a more careful and humane solicitude than that gentleman has done. One of his first objects, when he took charge of the superintendence, was to erect for them a new and commodious hospital, provided with every comfort, and equal to the hospitals of Europe. In every other respect he has paid a marked attention to their health and domestic comfort. The negroes were, at their own earnest desire, allowed to work over-time, on being paid for it; but in order to prevent this privilege being abused by the negroes themselves, the following resolutions were established:—

1. None but first-class blacks to be allowed to bore on over-time.

2. The mining captain to furnish two lists of the men he permits to bore over-time—viz.: one list to the medical officer, and a copy to the superintendent.

3. The surgeon, being furnished with the list, will continually watch and inspect each of these individuals, so as to detect the slightest symptom of any bad effect arising from their additional labour.

4. The night corps not to be allowed to bore on over-time, because it would detain them in the mine till too late an hour in the morning, and would, therefore, prevent them from getting a sufficiency of sleep.

5. Boring on over-time to be confined to the day corps, and, at all events at first, not to exceed one hole per man per week.

6. But the night corps and the second-class blacks, though excluded from "boring" on overtime, are to be allowed to do "surface work" on over-time for two hours each day—say, from half-past ten to half-past twelve o'clock.

Thus, while their solicitation was granted, every precaution was adopted to prevent its proving injurious to them. The same amount of mortality that has latterly been experienced on the establishment, has been met with before. In the year 1840 the deaths amounted to 53 out of a population of less than 500. The sanatory condition of Morro Velho fluctuates as it does in other places. In 1847 it was, as before remarked, only 2·6 per

cent. The attacks that have been made upon the company, for employing negroes at all, are of the most unjustifiable character. The company purchased this property with the negroes upon it; and as their workings have, from time to time, extended, they have hired other negroes, as they are lawfully entitled to do. It is almost the only description of labour that exists in the country. (The company also employ all the free labour they can obtain.) It is no fault of the company's that such is the social condition of Brazil. The directors have no power to alter it. If they were to propose to emancipate their negroes at once, the Government of the country would not permit it. Nor would any considerate person, who had the welfare of the negroes at heart, entertain such a project for a moment.

What the directors have done, and are doing, is this: they are seeking to improve the moral condition of the negroes; they provide them with good food, good clothing, and other comforts (the negroes have gardens, pigs and poultry); they encourage a spirit of industry amongst them, by dividing them into classes, and encouraging the most deserving; they endeavour to teach them the difference between right and wrong, by means of religious instruction and religious worship; they cause their children to be brought up to mechanical arts. In this way, and by encouraging matrimony amongst them, they are endeavouring gradually to improve their condition—to elevate them in the scale of humanity—and so prepare them for any change which the course of events may hereafter bring about. In taking this course, they are following the example of one of the most eminent religious bodies in this country, acting under a Royal Charter of Incorporation, to which estates in the West Indies, worked by negroes, were bequeathed. That body did not conceive the wild project of turning these negroes loose upon the world. They exercised, for a long course of years, a kind and parental care over them, until the way was prepared for an alteration in their social condition. The directors hope the time will come when a change in the social condition of Brazil, in this respect, may also take place.

They are ready to do everything in their power, by prudent and judicious measures, to accelerate it, without creating alarm and hostility in the minds of the Government of the country in which they are working. Acting thus, under a conscientious impression of the responsibility devolving upon them—with a deep sense of all the evils of slavery—doing all in their power, practically, to remove those evils, so far as the company's negroes are concerned—the directors repel with indignation the disgraceful imputations cast on them—mixed up, as those imputations are, with gross mis-statements and injurious insinuations as to the position of the company's affairs. These imputations have, in a recent Number of a morning paper, been carried to such a length, that the directors have instructed the company's solicitors to give the writer an opportunity of establishing the truth of them in a court of justice.

The directors did, on a recent occasion, instruct the secretary to make an answer to some very unfounded statements which appeared in the same paper. The answer was inserted—but accompanied by as great a mis-statement on the part of the writer as any which had preceded it. The secretary had stated that, between the 1st January and the last advices then received from Brazil, there had been 40 deaths out of 1106. On this the aforesaid writer remarks—"It is true that the population at the mines is 1106; but of this number about 500 only are, as we are informed, adults, and the remainder children, amongst whom there is scarcely any mortality at all." Thus, this writer asserts that out of a population of 1106 there were 606 children—the truth being that the number of children was only 169—that among the children there is scarcely any mortality at all—the fact being that, out of the said 40 deaths, 7 were children. The writer then goes on, upon these fabrications, to affirm the monstrous untruth that the deaths among the borers are at the rate of 40 per cent. per annum; and, in a more recent article, he states it to be 47 per cent. per annum!—W. Routh, Secretary: *Token-house-yard, Sept.* 19.

SOUTH WHEAL JOSIAH MINING COMPANY.

Sir,—I have often read in your valuable paper with much regret the anonymous reports of our Cornish mines. There can be no doubt it is most desirable that adventurers in mines should be periodically made acquainted with the prospects of their speculations; and we ought as a body to feel grateful to you, Sir, for permitting such reports to be communicated through the columns of your Journal. At present, however, it seems to me that, because the reports are unfortunately anonymous, and no responsibility attaches to the writers, they can no longer be relied on by your readers for the accuracy of the information they communicate; permit me, then, to draw your attention to the following reports which have lately appeared in your paper respecting South Wheal Josiah:—

Aug. 25.—This mine has been visited by some of the most eminent practical miners and agents in this neighbourhood—the general opinion being that it is one of the most kindly things discovered since Wheal Maria. The lode is from 1 ft. to 18 in. wide—all good work, fit for pile, and will produce from 3 to 4 tons of copper ore per fathom.

Sept. 1.—I am glad to inform you that this lode is looking well—the lode having increased in size in driving the adit, and is now full 5 ft. big. Several shares have changed hands, and there is a general inquiry after them; 15*l.* has been freely offered on 1*l.* paid.

The report in your last paper is, "that the prospects of the mine are highly encouraging, and that several shares have changed hands." Now, Sir, will you believe it that no course of ore has been there cut, producing from 3 to 4 tons of ore per fm., or even ¼ ton per fathom. Several adventurers in this mine have recently written to brokers at Truro, offering shares at 7*l.* 10s. per share; and one of them (Mr. Bawden) offered his shares in that town at 6*l.* per share, at the same time stating that he had inspected the mine, and it was most promising; but, being asked if it produced from 3 to 4 tons of ore per fathom, he replied that he could not say so, but that he had himself seen stones come out of the lode, which produced ore. It unfortunately happened, however, for Mr. Bawden and the other sellers, that a respectable solicitor from Tavistock was in the town at the time, and he made it known that it was "all a *flash*," for such was his expression; but, Sir, the fact of a seller offering shares in a mine, producing from 3 to 4 tons per fathom in a lode 5 ft. big, with a leader of ore from 12 to 18 in. in size, for 6*l.*, is, of itself, a sufficient contradiction to such an exaggerated report; and, Sir, although you are not allowed to authenticate reports by the signatures of the writers, I am sure you will lend your valuable assistance to expose exaggerated statements, so injurious to the mining interests; I, therefore, trouble you with these remarks on South Wheal Josiah.

Sept. 20. Jacobi Vox.

N.B.—I am curious to see what answer will be given to this letter; probably the writer will be good enough to tell the public what quantity is now at surface, for a lode producing from 3 to 4 tons of ore per fm. will soon raise a large pile, and when the mine may be expected to be in the Ticketing Paper.

[We readily insert the letter of our correspondent, having only one object in view, that of affording correct information; and where misrepresentation, in any shape, arises (to which we must not be considered as lending ourselves), we shall at all times be ready to expose the same, and any abuses which may arise from such cause. It is not to be supposed that we can be held answererable for the correctness of the reports which appear. The paragraph at the head of "Mining Correspondence" explains the cause why the names of agents are not given; while, on the present occasion, we have no hesitation in saying that the accredited resident agent, or captain, of the mine was the authority on which the report of the 25th August appeared; while that of the 1st September was from a correspondent, in whom we believed every reliance could be placed. We donot not the letter of "Jacobi Vox" will meet with a notice from those parties in our next.]

Devon and Courtenay Consols.—At a meeting of adventurers, held at the mine on the 18th inst., the accounts for the months of July and August were presented, showing—Balance last account, 67*l.* 12s. 5d.; ores sold, July, 88*l.* 18s. 1d.; call made July 17, 15s per share, 391*l.* 10s.=548*l.* 0s. 6d.—Cost, July, 208*l.* 18s. 9d.; August, 387*l.* 7s.=596*l.* 5s. 9d.: leaving balance against the mine, 48*l.* 5s. 3d.—A call of 5s. per share was declared. The agent's report will appear in our next Journal.

West Wheal Seton.—At a meeting of adventurers, on Tuesday last, the accounts were presented, showing—Balance at the end of June, 189*l.* 3s.; ores sold (less dues), 628*l.* 16s. 9d.=817*l.* 19s. 9d.—To costs, &c., for July and Aug., 713*l.* 10s. 11d.—Balance in favour of the mine, 104*l.* 8s. 10d.

West Wheal Treasury.—At a meeting of adventurers, held on the 17th inst., the accounts were presented, showing—Labour cost for April, May, June, and July, 1413*l.* 1s. 4d.; merchants' bills, 768*l.* 14s. 4d.; balance end of March, 92*l.* 8s. 7d.=2274*l.* 4s. 3d.—By tin sold January and August, 17*l.* 2s. 5d.; copper ores, July 12 and Sept. 18, 1922*l.* 2s. 4d.=1939*l.* 4s. 9d.: showing balance against the adventurers of 334*l.* 19s. 6d.—The report of Capts. C. Thomas and W. Hensley having been read and adopted, Messrs. J. Rule, W. Penberthy, and W. Hensley were appointed a committee to assist the agents in the general matter of dues and engine erections referred to therein, and that Mr. Gryll's answer be obtained as quickly as possible.

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of August is 25—the quantity of coals consumed being 2109 tons lifting, in the aggregate, 19,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 52,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal.—The following have exceeded the average:—

Mines.	Engines.	Length of stroke	Load in pounds.	Load per sq. inch on plat.	Strokes per min.	Consump. of coal in bus.	Million lbs. lifted 1 foot by consump. of 1 bush. coal	Mills. lifted 1 foot by 1 cwt. of coal.
East W. Crofty	Trevenson's 80	10·33	82,333	12·2	5·0	2764	58·4	69
East Pool	60-inch	9·75	40,103	11·6	4·3	1240	54·0	64
Carn Brea....	Sims's 50&90in.	9·0	60,882	24·2	3·8	1534	52·7	63
Poldice	Sims's 85-inch.	10·0	84,120	10·3	6·9	3568	57·5	68
S. Wh. Frances	75-inch	11·0	49,830	9·2	3·9	1580	56·4	67
United Mines	Taylor's 85-in.	11·0	97,621	15·6	6·5	4220	76·5	91
Ditto	Cardoza's 90-in.	9·0	100,682	13·8	6·5	4545	57·4	68
Ditto	Eldon's 30-inch	9·0	13,631	16·0	8·2	644	65·7	78
Ditto	Loam's 85-inch	10·0	87,947	11·6	6·2	3820	54·2	64
Treleigh Con.	Gardiner's60-in	10·25	43,801	12·4	4·2	1416	54·3	65
Tywarnhayle..	Gardiner's80-in	10·0	74,450	11·8	7·1	3768	57·2	68
East Wh. Rose	Penrose, 70inch	10·0	68,961	16·1	3·8	1734	70·5	84
Ditto	Michell's 70-in.	10·0	68,477	16·0	3·3	1686	61·7	73

ACCIDENTS.

Ballowidden Mine.—As N. Chargwin was engaged charging a hole, it exploded, igniting at the same time a can of powder which was near him, by which he received such severe injuries as to occasion his death, while being conveyed home.

Great Polgooth.—As two men, named Floyd, father and son, were at work underground, a scale of ground fell, and severely injured both. They were taken to their homes, and, we are happy to say, are in a fair way of recovery.

Durham.—J. Bailey was crushed to death by the falling of a large stone, while working in the north part of South Wingate Colliery.

BANWEN IRON COMPANY.

Richard Torrins Kindersley, Esq., the Master in Chancery, to whom the winding-up of this company has been referred, sat on Tuesday, pursuant to adjournment, for the purpose of announcing the name of the party whom he had selected from the five candidates for the office, to act as official manager. There were a considerable number of solicitors and agents present to watch the proceedings on behalf of shareholders and petitioners. Before the parties called upon the Master to state whom he had appointed as official manager, a good deal of discussion took place, in reference to the present position of the affairs of the company.

Mr. Harris, on behalf of Mr. Bristoe, one of the directors, who holds a considerable interest in the undertaking, read the following letter:—

My Dear Harris,—In reply to your favour of the 11th inst., I beg to say, I am perfectly willing to allow matters to stand in *statu quo* for the period mentioned, and on condition that no advantage be taken of the concession to my prejudice. I also undertake not to enforce my right under the clause of forfeiture for, say, a fortnight after the 29th inst. This will give time for any further communication. It must, however, be distinctly understood, that I do not, by this undertaking, waive any right under the forfeiture clause, as, in the present position of affairs, I cannot do so prudently; at the same time, being anxious that there should be as little loss as possible, I shall be perfectly ready to aid, in any way, those measures which may be deemed best for the company at large.

Fryside, near Camaraih, Sept. 13. I am, &c., R. J. Bristoe.

P.S.—If the winding-up is persevered in, I would suggest that the sooner the property is sold the better, as the dead rent and engineering wages are adding daily to the debts of the company.

An Agent, on behalf of some shareholders, called the Master's attention to one of the clauses in the deed, which gave power of forfeiture in case certain furnaces were not set to work, and a number of tons of iron produced by the 29th—the clause to which Mr. Bristoe's letter referred; but, in order to effect that object, a very large sum of money should be raised.

The Master said, he would wish to know where the funds were to come from to carry on the works, for, without money, things could not be carried on.

An Agent said, he thought the petitioners would come forward with the money. He believed that nearly nine-tenths of the shareholders were in favour of the business going on; but the agent for one of the petitioners refused to give the guarantee they required.

The Master said, it appeared to him that all petitioners were agreed that the undertaking should not be placed in a disadvantageous position; but he thought there was something ambiguous in the letter read by Mr. Harris.

An Agent observed that, if the necessary capital (say, about 5000*l.*) could not be raised by the time mentioned in the forfeiture clause, for the purpose of carrying on the works, then the whole concern could be stopped.

The Master said, that a Mr. Browne was the man who could do that; but that he was satisfied to wait for a certain period after the time had arrived. It would, therefore, be a pity to put a stop to the concern if there was any likelihood of the money being raised. However, if he appointed the official manager to-day, then the whole property would become vested in him.

An Agent said, he conceived that the order of the Vice-Chancellor to wind-up the company had rendered the forfeiture clause inoperative.

After some further discussion, it was finally agreed upon by all parties present not to call upon the Master to appoint the official manager that day, and to have a further adjournment to the 27th inst., in order that the shareholders and Mr. Browne might be consulted in the interim.

ASTURIAN MINING COMPANY.

We have obtained, from an authentic source, a copy of the contract mentioned at the last meeting of this company as in contemplation, of which the following is the substance:—

[Abstract of the proposed agreement between the Asturian Mining Company and MM. Munoz and Grimaldi, signed at Paris the 30th of August, 1849.—Translated from the French, by the Notary of the Asturian Mining Company.]

Lieut.-Colonel Biré, stipulating in the name of the Asturian Mining Company, of the one part; and M. Charles F. A. Sarchi, stipulating as attorney of M. José Antonio Munoz, Count del Reitemoso, and Jean Marie de Grimaldi, Administrator of the Old Salt Works of the East, of the other part, have entered into the following agreement:—

Article 1.—The Asturian Mining Company makes over to Messrs. Munoz and Grimaldi its establishments at Mières and Santo Firmé, and the quicksilver mine called La Eugenia, all situate in the neighbourhood of Oviedo, in the Principality of the Asturias, in Spain, the roads, bridges, rolling machines, steam-engines, sundry machines, coke furnace, high furnaces, workmen's houses, plant, and generally all other dependencies of the said mining establishments; in short, whatever composes their joint-stock, without any reservations than those which will be expressed in Article 3 of the present contract, such as the whole belongs to the ceding company, subject to the debts for which this company is liable to the former owner of its concessions, and subject to proceedings which are to be defended by Munoz and Grimaldi.

2. Possession to be given on the 30th Nov., 1849, by two delegates of the Asturian Mining Company, and taken by Messrs. Munoz and Grimaldi, or their attorneys.

3. and 4. Exclude the debts due to the company, which are to be recovered by its agents; the manufactured goods that are on the establishments of the company at the time of taking possession, to be taken at a valuation by Munoz and Grimaldi; the goods in course of manufacture, and the quicksilver ores raised also at the time of taking possession, to be converted, at the risk and expense of the Asturian Mining Company, into iron and quicksilver, and taken at a valuation; as also the stock of coal, coke, charcoal, iron ore, lime, bricks, freestone, wood, ovens, and standing vats, and generally, all stores.

5. The price of the goods, stores, &c., shall be paid to the delegates of the Asturian Mining Company, in *bills to order, payable at Madrid*, one-third at three months, one-third at six months, and one-third at nine months dates; to commence, as to the goods manufactured and stores, on the 30th Nov.; and as respects the goods in course of manufacture, the iron ores to be converted into iron, and the ores of mercury to be reduced into quicksilver, at the time of the delivery thereof, on their completion.

6. The Asturian Mining Company shall have the right to leave on the spot an agent, charged to receive the debts due, to watch over all their interests, and to assist in the execution of the works that must be done for its account—the said agent is to have a lodging on the establishment.

7. The valuers to be appointed by the Asturian Mining Company and Munoz and Grimaldi to have powers to fix, amicably, the price at which the said goods are to be taken, as well as the iron and quicksilver ore in their state, on the 30th November.

8. The machinery ordered from Messrs. Graham and Co., of London, to be taken and paid for by Munoz and Grimaldi, for their own account, at 400*l.*

9. Munoz and Grimaldi to complete, at their expense, within two years, the second large high furnace.

10. Disputes between the parties, as to the foregoing articles, to be adjudicated upon in Spain by arbitration.

11. Messrs. Munoz and Grimaldi, associating with other capitalists, shall constitute a commercial, mining, or anonymous company, for carrying on the works, in conformity with the laws of Spain, and transfer to the new company, without reservation, all the advantages and all the charges arising from the first article of the present contract—they remaining personally, jointly, and severally responsible for the payment of the working capital, and for the payment of the bills mentioned in Article 5.

12. The latitude allowed for the choice of the description of company not to impede the operations—the object being to form an anonymous company, in accordance with the laws of Spain—Munoz and Grimaldi promising to do all that depends upon them to effect forthwith the formation of an anonymous company, or to convert, as speedily as possible, into an anonymous company the commercial or mining company which they may have provisionally established.

13. Munoz and Grimaldi to organise, at their pleasure, the administration (*qy.*, the direction) of the new company, and appoint the persons for the direction, execution, and supervision of the works, the commercial agency, &c.; the number of administrators to be limited to a maximum of five; the Asturian Mining Company to be represented by 2 directors out of 5, or 1 out of 3; the new company—*i. e.*, Munoz and Grimaldi—are to name a secretary or clerk in London; the new company not to employ in Spain as engineer or as director (*qy.*, manager), any person who discharged those functions in the Asturian Mining Company.

14. Munoz and Grimaldi to draw up the statutes of the company in such a way as they shall consider most advantageous for the common interest, with stipulations to increase the capital, to issue bonds, or to effect amalgamations—submitting the adoption of the said stipulations to a general meeting of the new company; if the new company be not anonymous, power is to be reserved to convert it to such; the shareholders to be represented by proxy.

15. The capital to be divided into 8750 shares, of 20*l.*, or 2000 rls. vn., and the shares to be payable to bearer, if they can be so; 1750 shares (35,000*l.*) are set apart to represent the working capital (see preference given in Art. 18), and are now to be assigned to Munoz and Grimaldi; after paying up one-third of the working capital, Munoz and Grimaldi will have the power to require the delivery to them of the provisional titles or certificates of the said 1750 shares; 1750 shares additional to the foregoing are assigned to Munoz and Grimaldi, *by way of remuneration for the part they take in the re-organisation of the company, and in consideration of their bringing in the working funds (?)* to be delivered to them when the new company shall be constituted; the residue, 5250 shares, are assigned to the Asturian Mining Company, as the consideration for the cession; the certificates to be delivered to the administrators representing the Asturian Mining Company in the new association.

16. In case it be necessary to avoid specifying the value in money, each share shall represent 1-8750th part of the company's stock.

17. The profits, after previous deduction of 1*l.* 4s. or 120 reals vellon (6 per cent.) on each share, shall be distributed as follows:—The administration shall have 2 per cent. for each director; 5 per cent. a reserve fund, the remainder to be distributed as dividends on all the shares.

18. The deduction of 24s. or 120 reals, mentioned in the preceding article, is to be paid by preference to the 1750 shares, representing the working capital. If there be not sufficient profit to pay the same on all shares, the holders of these titles would first receive 6 per cent., and if no profit, the 6 per cent. preference interest to be a debt against the company.

19 Reserves the ratification for principals to be exchanged in London on the 5th Oct. The witnesses are Mr. Gideon Colquhoun, chairman of the board of directors; and Mr. Vergote, Belgian notary.

Gold in Van Diemen's Land.—At an assembly at Capt. Rossi's, Governor Fitzroy exhibited a lump of gold weighing 2½ ozs., which had been dug out of the earth, at Ironstone-bridge, near Berrima.

Californian Gold.—On Wednesday, we had the pleasure of inspecting one of the largest pieces of gold that has yet been dug out of the Californian mines. The specimen was received on that day by Messrs. M'Callum and Graham, Buchanan-street; it weighs 6½ lbs., and is worth about 350*l.* It is of irregular shape, and has the appearance of having been submitted to a fusing heat. Around this precious lump of metal an iron collar is fixed, to which is attached a strong chain about 2 ft. long. This apparatus was used in the United States to secure the prize from being stolen out of some museum in which it was exhibited as a great curiosity. This large piece of bullion in its present shape being attended with inconvenience as an article of exchange, we understand that last night it was transmitted to London, for the purpose of being reduced to the current coinage of the realm.—*North British Mail.*

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order, 35

123, George-street, Edinburgh, May 30, 1849. D. RANKINE, Treasurer.

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The NEXT SESSION will COMMENCE on MONDAY, the 1st of October next, and end on Saturday, the 23d of February, 1850.

The FEE for students working every day during the session, is	£15	0	0
,, ,, ,, four days in the week, is	12	0	0
,, ,, ,, three days in the week, is	10	0	0
,, ,, ,, two days in the week, is	7	0	0
,, ,, ,, one day in the week, is	5	0	0

Hours of Attendance from Nine to Five. 36

Further particulars may be obtained on application to
WILLIAM JOHNSON, Secretary.

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Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street). 38

IMPROVEMENTS IN COKE OVENS.

Specification of patent granted to H. Fisher, Upholland, Lancaster, for improvements in coke ovens, and in machinery and apparatus for working the same, or connected therewith; and a mode or modes of applying certain portions of coke or the residual portions of coke to heating and lighting. This specification is somewhat voluminous, and relates to the processes of manufacturing coke, and in the arrangement and construction of coke ovens, and connected apparatus. The specification is divided into several heads, and the improvements consist principally in producing a greater quantity of coke, and of superior quality from a given quantity of coal than has hitherto been the case; and this the patentee effects by a better distribution of the supply of atmospheric air to the ovens, and consequently more perfect combustion of the gases evolved from the coal in the coking process and so that the draft of atmospheric air through the ovens should be more regular, equable, and gentle. The first head of the specification describes the patentee's mode of constructing coke ovens; and the improvements consist in providing them with a number of air passages and apertures, by which the supply of atmospheric air is conveyed to the interior of the oven; these passages and apertures being through the crown of the arch, by which the atmospheric air is more effectually combined with the gases, and their more perfect combustion is effected, in consequence of the gases accumulating at the top; there is also a discharge flue or passage upon the wall or pier between two adjacent ovens, which communicate by other flues or passages to both of the ovens and to the main flues. The object of this arrangement is to effect the necessary draft. The patentee states in the specification the principal dimensions of the ovens which he prefers, but which is unnecessary to give here. The second head describes the patentee's mode of charging ovens, which is effected by an opening through the crown or arch of the oven; there is a termination of the lower arch of the oven to allow of this. The patentee describes two or three modifications of constructing the crown or arches of the oven, so as to enable the oven to be charged from the top. The third head of the specification is the description of an apparatus, the object of which is to spread the coal when it is charged to the oven from the top, evenly and regularly over the bottom of the oven, and not heaped up in the oven immediately under the charging opening, as otherwise would be the case. This apparatus consists of two iron plates or frames attached loosely to a shaft or rod. The plates are allowed to expand or recede from each other at one end to the extent allowed by chains attached to them. A chain attached to the shaft enables the apparatus to be lowered into the oven, through the charging opening, and other chains attached to the frames cause them to assume a sort of A roof from under the opening, and thereby, when the charging takes place, causes the coals to be evenly distributed over the bottom of the oven. The improvements described under the fourth head consist in the construction of apparatus for the purpose of discharging the manufactured coke from the ovens. After the process of coking, he describes several modifications of the apparatus, which consist in applying, through the back opening or door of the oven, a draw plate, and to this is attached a rod, passing from the front opening or door through a tube laid upon the bottom of the oven previous to charging; the rod being attached to the draw plate, and power of force applied to it, the draw plate is driven through the oven, carrying with it the whole of the coke. If requisite, the draw plate may be made hollow, and cold water passed into it to keep it cool. He likewise describes several modes of working the discharging apparatus either from the front, back, or top of the oven. The object of the improvements appear to be, having the discharging apparatus, when required for use, cold, or only slightly heated. The fifth part of the specification consists of a mode of constructing the several parts of the discharging apparatus, so as to enable them the better to withstand the great heat of the oven, and, consequently, to last a greater lenth of time. In place of making these parts of solid metal rods or bars, the patentee makes them hollow, and fills them with sand, pounded brick, or other substances of imperfectly conducting power, by which means they bear the heat better, and last much longer than usual. The sixth part describes an improved mode of opening and closing the doors of the oven, and the seventh part consists of a mode of cooling down the manufactured coke after the process of coking is complete. To this end the patentee closes up—when the coking process is complete—all the apertures in the oven; and through a supply-pipe, provided with a stop-cock, a quantity of steam from a boiler is admitted, which has the effect of speedily cooling down the temperature of the coke without injury to the oven, and with advantage to the quality of the coke. The patentee proposes sometimes to employ for the same purpose, in lieu of steam, carbonic acid gas, admitting it to the oven in the same manner, through a supply pipe. The introduction of either of these expels the atmospheric air, and thereby prevents further combustion from taking place. The carbonic acid gas may be procured in any convenient manner.—*Patent Journal.*

JOINT-STOCK BANKS.

Shares.	*Companies.*	*Paid.*	*Div. p. cent.*	*Price.*
22,500	Australasia	£40	£3	£25
20,000	British North American	50	6	40
20,000	Colonial	25	5	6¾ 6½
20,000	Commercial of London	20	6	20½
60,000	London Joint-Stock	10	6	10¼
40,000	London and Westminster	20	6	25
10,000	National Provincial of England	35	5	35½
20,000	National of Ireland	22½	5	18
20,000	Provincial of Ireland	25	8	40½
10,000	South Australia	22½	—	17⅜ 18
20,000	Union of Australia	25	6	25½ 25⅝
60,000	Union of London	10	6	10⅝

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bate's West Hartley 14 6—Broomhill Hartley 14—Chester Main 14 3—East Adair's Main 13—Hasting's Hartley 15—Holywell Main 14 6—New Tanfield 13 4—North Percy Hartley 14 6—Ord's Redheugh 14—Ravensworth West Hartley 14—Smith's Pontop 12 6—Tanfield Moor 14—Tanfield Moor Bute's 13 3—Townley 14—West Hartley 15—West Wylam 14 6—Windsor Pontop 13 3—Wylam 14 6—Wall's-End Berwicke and Co. 15 3—Brown's Gas 13—Gibson 14 6—Gosforth 15 3—Hedley 15—Harton 15 3—Morrison 15 6—Northumberland 14 6—Riddell 15—Urpeth 13 6—Walker 14 9—Eden Main 15 9—Lambton Primrose 13 9—Hetton 16 6—Haswell 16 9—Jonassohns 14 9—Lambton 16 3—Russell's Hetton 16 3—Stewart's 16 6—Whitwell 15 6—Benson 14 9—Caradoc 15 9—Cassop 15 9—Denison 14 9—Hartlepool 16 6—Kelloe 15 9—Thornley 16—West Hartlepool 15 6—Whitworth 14—Brown's Deanery 15—Seymour Tees 15 6—South Durham 15 3—St. Helen's Tees 14 6—Tees 16 6—West Cornforth 15—Cowpen Hartley 15—Derwentwater Hartley 14 9—Hartley 14—Sidney's Hartley 15—Carr's Hartley 14 9.—Ships at market, 202; sold, 131.

WEDNESDAY.—Bate's West Hartley 14 6—Carr's Hartley 14 9—Chester Main 14 6—East Adairs Main 13—Hastings' Hartley 14 9—Holywell Main 14 9—Newcastle Hartley 14—New Tanfield 13 3—North Percy Hartly 14 6—Ord's Hedheugh 13 6—Ravensworth West Hartley 14—Tanfield Moor 14—Tanfield Moor Butes 13 6—Townley 13 9—West Hartley 14 9—West Wylam 14 6—Windsor Pontop 13 6—Wylam 14 6—Wall's-End Bewick and Co. 16—Brown's Gas 13—Gosforth 15 9—Hilda 15 3—Harton 15 9—Hotspur 15—Morrison 15 9—Northumberland 13—Walker 15 3—Eden Main 15 9 to 16 6—Lambton Primrose 15 9—Bell 15—Belmont 16 3—Braddyll 16 3—Hetton 16 9—Haswell 17—Jonassohns 15 3—Lambton 16 3—Lumley 16—Plummer 16 6—Stewart's 16 6 to 16 9—Cassop 16 3—Heugh Hall 16—Kelloe 16—South Hartlepool 16—Whitworth 14—Adelaide Tees 16—Seymour Tees 15 9—South Durham 15 6—Tees 16 9—West Cornforth 15 3—Cowpen Hartley 14 9—Hartley 14—Sidney's Hartley 14 9—Ships, 177; sold, 114.

FRIDAY.—Carr's Hartley 14 9—Chester Main 15—Dean's Primrose 14—Adair's Main 13—Hasting's Hartley 15—Holywell Main 15—Newcastle Hartley 14 6—North Percy Hartley 14 6—Original Tanfield 12 6—Ord's Redheugh 13 6—Raensworth's West Hartley 14 6—Tanfield Moor 14—Tanfield Moor Bute's 13 6—Townley 14—West Hartley 14 9—West Wylam 14 6—Windsor Pontop 13 6—Wylam 14 6—Wall's End Acorn Close 16 6—Brown's Gas 13—Gosforth 16—Hilda 16—Harton 16—Northumberland 15 3—Eden Main 17—Belmont 17—Braddyll 17—Hetton 17 3—Haswell 17 6—Jonassohn's 15 9—Lambton 16 9—Lumley 16 6—Russell's Hetton 16 9—Stewart's 17—Whitwell 16 9—Caradoc 17—Heugh Hall 17—South Hartlepool 16 6—Thornley 16 6—West Belmont 16 6—Whitworth 14 6—Adelaide Tees 16 9—West Pease 14—Seymour Tees 16 3—Tees 17—Cowpen Hartley 14 9—Hartley 14 6—Sidney's Hartley 15.—Ships, 104; sold, 71.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., —	Belgian, 4½ per Cent., —
3 per Cent. Reduced Ann., —	Dutch, 2½ per Cent., 54¾ ⅜
3 per Cent. Consols Ann., 92⅜ ⅜	Brazilian, 5 per Cent., 86¾
3½ per Cent. Ann., 93¾	Chilian, 6 per Cent., —
Long Annuities, —	Mexican 5 per Cent., ex Coup., 27⅜ ⅜
India Stock, 10½ per Cent., 252	Russian, 5 per Cent., 107⅜ ⅜
3 per Cent. Consols for Acc. 92⅜ ⅜	Spanish, 5 per Cent, 17⅜ ⅜
Exchcq. Bills, 1000*l.*, 1¦d. 36 9 pm.	Ditto 3 per Cent., 34¾ ⅜

MINES.—The actual transactions in the mining share market this week have been unusually limited, notwithstanding the improving position of the mines generally, and the firmness of the metal market, with an upward tendency. The small amount of share business during the week may, in some measure, be attributed to the several interruptions which business has sustained generally, in consequence of the different days appointed in London and the country for humiliation and prayer, on account of the prevailing epidemic.

The directors of Devon Great Consols, at their meeting on Tuesday last, declared a dividend of 5120*l.* on the two months' working, amounting to 5*l.* per share, after which there will remain in hand a balance of 18,210*l.*, consisting of cash and ore bills not yet at maturity, including 5000*l.* Exchequer bills forming the reserved fund. The advices from the mines are satisfactory, and the improvement in the standard cannot fail being very agreeable to the proprietors.

Treviskey and Barrier are represented to have improved, and shares have been done at an advance.

Tincrofts have also been done at better prices.

East Wheal Rose, we learn, is looking much better than she has for some time past; the bottom levels are improving, as well as some other important points in the mine. The next dividend may be anticipated at 30*l.* per share, the same as the last.

South Basset continues in an improving position; they are now working on nine lodes—William's, Lloyd's, and Theaker's, are the most productive; 6000*l.* of ore is represented to be laid open.

South Molton and Camborne Consols are stated to have very much improved during the past week.

There are buyers for South Basset, East Wheal Rose, Trelawny, West Carad on, Treviskey and Barrier, North Pool, &c.

Shares in the following mines have changed hands during the week:—Devon Great Consols, Trelawny, Treviskey and Barrier, Tincroft, Birch Tor and Vitifer, Mendip Hills, West Caradon, Wheal Russell, West Providence, South Wheal Josiah, South Tamar, Tamar Consols, Keswick, &c.

Heigneton Down Consols bi-monthly meeting was held on the 17th. The statement of accounts showed a balance of 349*l.* 16s. 9d. in favour of the company. The report from the mines presented nothing important.

South Tamar bi-monthly meeting was held on the 20th. The balance in hand being 68*l.* 18s. 9d., a call of 2s. 6d. per share was deemed necessary, to meet the present expenditure. The manager's report is very satisfactory, showing the operations progressively improving, and that the whole of the machinery, pitwork, and surface work would be completed before the winter set in.

East Tamar two-monthly account was held on Thursday last. The financial statement showed a balance in favour of mine of 1140*l.* 3s. 11d., the liabilities being 1379*l.* 7s. 1d., and the assets 3025*l.* 16s. 6d. The mine is represented to be improving in several important points.

Reports of the meetings of Alfred Consols, Devon and Courtenay, West Wheal Treasury, and West Wheal Seton, will be found in another column.

In foreign mine shares the chief business done were in United Mexican, Imperial Brazilian, and Copiapo, and a few shares in Guadalcanal.

The Alten report for August has been received. The estimated produce for the month amounts to 217½ tons. The agent's report is highly satisfactory, and the prospects are represented more favourable than they have been for many years.

The following table shows the comparative revenue arising from different securities at present prices, at the rate of the last declared dividends:—

	Paid.	Div. p. ct. or per share.	Price.	Return p. cent. per annum.
Edinburgh and Glasgow	£100	6	£78	£7 14 0
Great Western	100	4	74	5 8 3
Lancashire and Yorkshire	100	5	78	6 8 2
London and Brighton	50	29s	37	3 18 4
London and North-Western	100	7	127	5 10 3
London and South-Western	100	3½	68	4 15 6
South-Eastern	33⅓	32s	22	7 5 6
Manchester & Liverpool Dis. Bank	10	8	12½	6 4 2
North Union A Guaranteed	100	10	224	4 9 3
Leeds and Bradford ditto	50	10	102	4 18 0
Preston and Wyre ditto	25	35s 4½ *a*	39	4 10 7
Lancashire & Yorkshire Prefer	10	6	12¾	4 16 0
Great Northern Preference	12½	5	10⅜	5 16 3
Caledonian ditto	10	7*b*	11½	6 4 5
Eastern Counties ditto	10	6	11½	5 4 4
East Lancashire ditto	6¼	6	7¾	4 15 4
Shrewsbury & Birmingham Pref.	8	8*c*	10¾	6 4 4
Bank Interest	—	—	100	2 to 2½
Consols	100	3	92⅛	3 4 9

a, For 5 years, and 30s 3½ afterwards.—*b*, for 4 ditto, & 6 p. ct.—*c*, For 10 ditto & 6 ditto.

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Length. 1849	1848	Present actual cost.	Price p. share	Div. 1848	Traffic Returns. 1849	1848
Aberdeen	33	16	1,000,547	17	—	£ 582	£513
Belfast and Ballymena	37½	37½	514,968	19⅜	5*	428	387
Birkenhead, Lancashire, & Chesh.	19	15	1,088,804	37	5†	877	976
Bolton, Blackburn, & West Yorksh.	14	—	786,384	6⅜	—	421	402
Bristol and Exeter	85¼	75¼	2,660,490	60	—	4308	—
Caledonian	154	141	4,865,135	16⅝ 16⅜	3	7038	5037
Chester and Holyhead	84	59½	3,358,217	11¾	4	2132	2106
Dublin and Drogheda	35½	35½	778,566	29½	—	757	843
Dublin and Kingstown	7½	7½	395,915	—	—	788	996
Dundee, Perth, & Aberdeen Junc.	47⅛	47½	544,554	19	6⅛	1038	1090
East Anglian (Lynn to Ely)	21⅛	55⅛	1,167,104	2	—	644	632
East Lancashire	75½	24	2,628,519	14⅜ 14⅛	5	3815	1736
Eastern Counties and Norfolk	322	295	12,027,069	7⅜	—	14343	16215
Eastern Union	78	50½	1,782,703	13	—	1636	1425
Edinburgh and Glasgow	57½	52½	2,644,376	36 35	6	4015	4463
Edinburgh and Northern	78	34	2,232,115	10⅛	2	2419	—
Glasgow, Paisley, and Ayr	102½	74	2,574,330	50	3	3126	3163
Glasgow, Paisley, & Greenock	23	23	852,846	16⅜	2	1122	1117
Gt. Northern & East Lincolnshire	126	—	5,138,756	7	5†	2806	—
Gt. Southern & Western, Ireland	168½	110½	3,172,519	27	6†	3389	3888
Great Western	230½	206½	11,867,042	61 54	6½	15464	21749
Lancaster and Carlisle	70	70	1,476,102	48 47½	4½	4079	3569
Lancashire and Yorkshire	206½	127½	9,218,450	63 65	5½	13271	12960
Liverpool, Crosby, & Southport	13	—	84,455	3	—	192	243
London and North Western	435	428	26,251,635	114 108	7	43426	46818
London and Blackwall	5½	4	1,299,675	3⅜ 3⅛	1-12	796	1334
London, Brighton, & South Coast	170	162½	6,502,600	70	2½	11999	11376
London and South-Western	216½	194	7,874,259	33¼ 32½	5½	10363	11214
Londonderry and Enniskillen	14½	14½	185,739	16	—	128	133
Manchester, Sheffield, & Lincolnsh.	157½	94½	6,598,260	25 26	5	4961	3412
Midland Company	471	423½	14,042,340	51½ 49	5½†	23958	24159
Midland Great Western (Irish)	50	36½	725,332	22½	4†	1098	1064
Monklands	37	—	486,245	—	6	753	—
North British	109½	83	3,649,055	12	4½	3205	3011
Scottish Central	45½	—	1,364,228	18½	7	1722	1376
Shrewsbury and Chester	48	23	969,618	12	5	1490	642
Shropshire Union	30	—	—	2	—	425	—
South Devon	57⅝	29	1,909,232	7	5	1764	1739
South-Eastern	189½	165½	8,116,914	19½ 16½	5½	12576	11552
Taff Vale	40	40	879,110	—	7½	2349	1924
Ulster	36	36	723,899	45½	—	680	839
West Cornwall	13	—	—	—	—	—	248
Whitehaven Junction	12	12	150,879	9⅛	3	213	190
York, Newcastle, & Berwick	269	242½	6,827,849	17 17⅛	7	13945	13881
York and North Midland	290½	234	4,983,618	21½ 20½	7	8202	9635

FOREIGN RAILWAYS.

Amiens and Boulogne	76½	68	1,462,562	6	2½	1496	1520
Dieppe	26	—	—	—	—	927	451
Dutch Rhenish	57½	57½	—	6½	—	—	—
Montereau and Troyes	71½	71½	—	—	—	1026	514
Northern of France	211	211	7,142,890	22 dis.	—	18364	15240
Orleans to Bourges (Central)	107½	107½	1,229,848	—	4	2908	2135
Orleans to Tours	72	72	600,000	32	6	—	—
Paris and Orleans	82	82	2,011,720	30½	8½	8021	7719
Paris and Rouen	85	85	2,082,916	21	5	7395	6531
Rouen and Havre	59½	—	2,272,176	10½	—	3044	2885
Strasburgh and Basle (monthly)	88	88	—	6	—	—	—
West Flanders (ditto)	—	—	—	1½	—	—	—

* Per cent.—† Interest.—Total for last week, £238,772, being an increase of £7700 over last year.

THAMES TUNNEL COMPANY

The number of passengers who passed through the Tunnel in the week ending Sept. 15, was—No. of passengers, 12,518.—Amount of money, £52 3s. 2d.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	9 ..	8
1024	Alfred Consols	8¾ ..	8
1000	Antimony&Silver-Lead	5 ..	—
1024	AshburtonUnited Mines	8¾..	12
1024	Balleswidden	9 ..	18
128	Bainoon Consols	42½..	50
1000	Barristown	5¼ ..	1¼ 2
3650	Bawden	¾ ..	¼ ⅜
4000	Bedford	2¾ ..	3¼ 3⅜
1280	Birch Tor & Vitifer	10¾ ..	6 7
8000	Blaenavon	50 ..	10
5000	Blisland Consols	1 ..	5⅛
100	Botallack	182 ..	25
120	Brewer	5 ..	5
256	Brimpts Tin	2¾ ..	2¾
10000	British Iron, New, regis.	12 ..	8
—	Ditto ditto, scrip	10 ..	10
2400	Bryn-ar-lan	— ..	6
128	Budnick Consols	52½..	10
1000	Callington	22 ..	9
1000	Camborne Consols	7 ..	4 6¼
20000	Cameron's Steam Coal	7 ..	1
256	Caradon Copper Mine	9¼..	1¼
256	Caradon Mines	22½..	10
256	Caradon United	24 ..	5 8
256	Caradon Wh. Hooper	21 ..	4¾
1000	Carn Brea	15 ..	105
3000	Carthew Consols	1¼..	6
114	Charlestown	220 ..	—
500	Combiawn	5¼..	4¼
128	Comfort	45 ..	60
256	Condurrow	20 ..	65 70
2560	Cook's Kitchen	14 ..	2¾ 3
1000	Coombe Valley Quarry	3¾..	4¼
1000	Copper Bottom	1¼..	6¼
900	Court Grange	5 ..	10
212	Craddock Moor	23¾..	5
128	Creeg Braws	120 ..	30
500	Cubert Mine	12¾..	—
1000	Cwm Erfin	3¼ ..	3 3¼
7100	Derwent	8¼ ..	5
845	Devon&CourtenayCon.	7¼ ..	1¼ 2
1024	Devon Great Consols	1 ..	200
1000	Dhurode	2 ..	5
182	Dolcoath	30 ..	15
2560	Drake Walls	5¼ ..	3 4
10000	Durham County Coal	45 ..	9
3000	Dyfngwm	10 ..	10 12
512	East Alvenney	5¼ ..	6
2500	East Birch Tor	3 ..	3
112	East Caradon	47 ..	47
2048	East Crowndale	6¼ ..	4
512	East Combe Silver-Lead	6¼ ..	6¼
128	East Pool	15 ..	60
9000	East Tamar Consols	¾ ..	¾ ⅞
94	East Wheal Crofty	125 ..	65 70
128	East Wheal Rose	50	600 625
—	East of Scotland Iron Co.	5 ..	1¼
123	East Wheal Seton	14 ..	10
1280	Esgair Llee	1¼ ..	4 4¼
248	Exmoor Wh. Eliza	6 ..	6
494	Fowey Consols	40 ..	45
1024	Freidd Llwydd Mines	1¼..	3¼
4000	Gen. Mining Co. for Irel.	1¼..	1¾
256	Gonamena	44¼..	16
128	Goonvrea	4 ..	2
256	Grambler & St. Aubyn	80 ..	8 9
100	Great Consols	1000..	180
512	Gt. Wh. Rough Tor Con.	24¼..	18 20
6000	Growa Slate Company	5 ..	5
6000	Heigneton Down Con.	1¼..	⅜
1500	Hennock Silver-Lead	1¾..	1
4500	Hennock Iron & Tin	21s ..	21s
256	Herodsfoot	27 ..	12 13
10000	Hibernian	12¼..	1¾
1000	Holmbush	22 ..	6
1024	Kingsett and Bedford	1¼..	3¾ 4
787	Kirkcudbrightshire	8¼..	2¼
2048	Lamberrow Wh. Maria	8 ..	2¼
252	Lanarth Consols	— ..	4
128	Leiant Consols	90 ..	40
160	Levant	— ..	200
1000	Lewis	17 ..	9¼ 10
1000	Llwynmaiees	8 ..	5 5¼
3600	Llynvi Iron	50 ..	50
253	Lostwithiel Consols	23 ..	10
6000	Marke Valley	10 ..	¾ 1
5000	Mendip Hills	3¾..	1¾ 1¾
128	Metlua	34 ..	—
90000	Mining Co. of Ireland	7 ..	4
1280	Naut-y-cria	5 ..	5
256	New East Crowndale	3¾..	2¼
100	North Pool	45	500 510
140	North Roskear	5¼..	140
262	North Wh. Leisure	1¼..	2
256	North Wheal Basset	10 ..	10 12
10000	Northern Coal Co.	23 .	2
128	Par Consols	55¾..	650
8000	Pennant & Craigwen	2¼..	2
1024	Penzance Consols	22s 3d..	3
512	Plymouth Wh. Yeoland	6¼..	6
200	Polsaith Consols	5¼..	4¼
2500	Rhoswiddol&Bacheiddon	10 ..	10
10000	Rhymney Iron	50 ..	13
10000	Ditto New	7 ..	6¼
1000	Rosewall Hill	1 ..	5
256	Rosewarva Mines	— ..	12

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
2048	Runnaford Coombe Tin	¾..	⅝
9000	South Tamar	¼..	1¼ ⅜
128	South Caradon	5 ..	350
1100	South Dolcoath	5 ..	¾ 1
256	Sth. Friendsh. Wh. Ann	30 ..	28 30
256	South Molton	5 13	14 15
256	South Tolgus	16 .	50 55
256	South Trelawny	28¼..	5
2000	South Wales Mining Co.	¼..	1 1¼
128	South Wheal Basset	20¼..	365
124	South Wh. Frances	160 ..	255
256	South Wh. Josiah	1¼..	5 6
1000	South Wh. Maria	2¼..	1¾
10000	Southern&Western, Irish	2¼..	4
280	Spearns Moor	30 ..	40
94	St. Ives Consols	— ..	80
128	St. Michael Penkivel	5 ..	10¼
999	St. Minver Consols	1 ..	6
1000	Stray Park	43 ..	17⅛
9600	Tamar Consols	3 ..	7¼ 8
10240	Tavistock Consols	¼..	⅜ ⅝
1024	Tavy Consols	6¼..	1¼
6000	Tincroft	7..	11½ 12¼
58	Tokenbury	170 ..	10
256	Tregorden	3¼ ..	5 5¼
256	Tremane	1¼ ..	25
5000	Treleigh Consols	6 ..	3¼ 4
2000	Trenance	3 ..	—
96	Tresavean	10 ..	95
120	Trethellan	5 .	15 16
120	Treviskey and Barrier	130..	100 110
200	United Mines	50 ..	150
256	Wellington Mines	25 ..	30 32
128	West Buller	10 ..	300
256	West Caradon	20 ..	117¼ 20
512	West Fowey Consols	40 ..	12
256	West Providence	9 ..	18
200	West Seton	45 ..	180
120	West Trethellan	5 ..	5
512	West Wheal Frances	1¼ .	2
256	West Wh. Friendship	9 ..	8
3725	West Wheal Jewel	12 ..	¾ 1
256	West Wheal Tolgus	80 ..	5
256	West Wheal Treasury	19 ..	5
1024	Whiddon Mines	4¼..	2
5200	Wicklow Copper	5 ..	8¾ ⅞
107	Wheal Adams	79 ..	30
1000	Wheal Agar	— ..	6
256	Wheal Albert	10 ..	1
240	Wheal Anderton	28 ..	10 15
128	Wheal Ann	— ..	50½
512	Wheal Anna Maria	7 ..	8
120	Wheal Bal	5¼..	15
256	Wheal Benny	14¾ ..	2
1024	Wheal Bray	10 ..	10
256	Wheal Bincowe	21 ..	12
2324	Wheal Calstock	9 ..	20 25
256	Wheal Fortescue	15 ..	—
388	Wheal Franco	27 ..	11 12
128	Wheal Harriet	45 ..	—
100	Wheal Henry	— ..	25
1024	Wheal Lawrence	2¼..	2¾
112	Wheal Margaret	79 ..	225
512	Wheal Mary Ann	5 ..	26 27¼
360	Wheal Oak	6 ..	5
3000	Wheal Penhale	— ..	6
210	Wheal Prospect	4 ..	7
120	Wheal Reeth	41 ..	150
128	Wheal Rose	60 ..	3
198	Wheal Seton	214 ..	250
180	Wheal Sisters	35¼..	5
494	Wheal Sophia	4¼..	5
128	Wheal Spearne	10 ..	68 70
128	Wheal St. Ann	30 ..	35
550	Wheal Trescoll	9 ..	10 15
360	Wheal Trelawny	7¼..	72 75
256	Wh. Tremaine(St. Ervan)	9¼..	2¼
1024	Wheal Tremayne	9¼..	3 4
92	Wheal Tryphena	140 ..	100
1000	Wheal Vincent	2¼..	7
256	Wheal Vlow (Perranz.)	⅜..	⅜
184	Wheal Vyvyan	— ..	60
250	Wheal Williams	28¾..	8

FOREIGN MINES.

5000	Alten Mining Company	14¼..	2¼
15000	Asturian Mining Co.	1 ..	2¼
20000	Australian	3 ..	6¼
6000	Barossa Range	1¾..	1¾ ⅛
3000	Bolanos	150 ..	—
2000	Ditto Scrip	15 ..	—
10000	Brazilian Imperial	23 ..	4¼ 5¼
12000	Cobre Copper Co.	40 ..	23
10000	Copiapo Mining Co.	14 ..	4 4¼
20000	General Mining Ass'n.	20 .	10¼
4000	Guadalcanal	5 ..	2¼ 3
5000	Kinzigthal Mining Ass.	2 ..	1¼
5051	Mexican Company	59½..	—
2000	Mexican & SouthAmer.	8 ..	1 1¼
5000	National Brazilian	30 ..	3 3¼
104000	N. Brit. Australasian	1 ..	7s 0d
7000	Royal Santiago	10 ..	4¼
11000	St. John del Rey	15 ..	9¼
43174	United Mexican	Av. 28¼..	3⅞ 4

*** *We should feel greatly obliged by agents, or others interested, furnishing us with such corrections for our Share List as we may not have received through our usual channels of information—our object being, to present as accurate a list of prices as can be obtained—to procure which, we solicit the aid of correspondents in general.*

LATEST CURRENT PRICES OF METALS.

LONDON, SEPTEMBER 21, 1849.

ENGLISH IRON. *a*		*per ton.*
Bar, bolt, & square, London	£5	15 0—6
Nail rods	7	0 0
Hoops	7	15 0—8
Sheets (singles)	8	10—8 15
Bars, at Cardiff & Newport	5	2 6—5 5
Refined metal, Wales*	3	10—3 15
Do. anthracite*	3	15 0
Pigs in Wales	3	5—4 5
Do. do. forge	2	15—3 5
Do., No. 1, Clyde ... *net cash*	2	4 6-2 6
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	3	15 0
Do., do., for tin-plates, boiler plates, &c., ditto	4	10 0
Stirling's Patent Toughened Pigs in Glasgow & in Wales	2	1*d*—2 16
Staffordshire bars, at the works	6	10
Pigs, in Staffordshire	2	15—3 0
Rails	5	5
Chairs	4	0 0
FOREIGN IRON. *b*		
Swedish	11	10 0—12
CCND		—
PSI		—
Gourieff		—
Archangel		—
FOREIGN STEEL. *c*		
Swedish keg	14	0-14 10
Ditto faggot	15	0 0
ENGLISH COPPER. *d*		
Sheets, sheathing, & bolts, *p. lb.*	0	0 9¼
Tough cake *per ton*	84	0 0
Tile	£83	0 0
Old copper *e* *per lb.*		8*d*
Yellow Metal Sheathing		8*d*
FOREIGN COPPER. *f*		
South American, in bond		—
ENGLISH LEAD. *g*		
Pig *per ton*	15	15 0
Sheet	16	15 0
Red lead	18	0 0
White ditto	22	0 0
Patent shot	19	15 0
FOREIGN LEAD. *h*		
Spanish, in bond	14	15—15
American ditto		—
ENGLISH TIN. *i*		
Block *per cwt.*	3	13 0
Bar	3	14 0
Refined	3	19 0
FOREIGN TIN *k*		
Banca, in bond	3	10 0
Straits	3	8 0
Peruvian (6 mo 2½ p. ct. dis.)		—
TIN-PLATES. *l*		
IC Coke *per box*	1	7-1 8 6
IC Charcoal	1	10—1 12
IX ditto	1	18 0
SPELTER. *m*		
Plates, warehoused *per ton*	15	0 0
Ditto, to arrive	14	15 0
ZINC. *n*		
English sheet *per ton*	22	0 0
QUICKSILVER *o* *per lb.*		2*s.* 11*d.* 3*s*

Terms.—*a*, 6 months, or 2½ per cent. dis.; *b*, ditto; *c*, ditto; *d*, 6 months, or 3 per ct. dis; *e*, 6 months, or 2½ per cent. dis.; *f*, ditto; *g*, ditto; *h*, ditto; *i*, ditto; *k*, net cash; *l*, 6 months, or 3 p. ct. dis.; *m*, net cash; *n*, 3 months, or 1¼ p. c. dis.; *o*, ditto, 1½ dis.

* Cold-blast, free on board in Wales.

REMARKS.—All descriptions of manufactured iron have been in fair demand during the past week, and prices well maintained. Considerable orders for rails have been received from America, and a good portion placed at about our quotation. Scotch pig-iron continues dull of sale. We quote the price 44s. 6d. for No. 1, and 43s. 6d. for mixed numbers—ordinary brands.

GLASGOW, SEPT. 20.—Pig-iron is continuing very dull of sale. The transactions this week have been few, and at further reduced prices. We quote the price of mixed Nos. at 43s. 6d.—cash.

LIVERPOOL, Sept. 21.—The orders received by the last American steamer for manufactured iron are good, and we have, consequently, experienced an improved demand for the article, and the prices current on this day week have been well sustained. Scotch pigs have been quite neglected, and mixed Nos. L. M. B. have been offered at 43s. per ton, without inducing buyers. Iron plates are in good demand and scarce; in some instances an advance of 1s. per box has been demanded. There is no change in lead or copper.

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars	per oz. £3 17 9	New dollars	per oz. £0 4 9¾
„ Portugal pieces	0 0 0	Silver in bars (standard)	0 4 11½

MEETINGS OF COMPANIES DURING THE ENSUING WEEK.

MONDAY ..... Runnaford Coombe Mining Company—Black Eagle, Woolwich, at Five.
TUESDAY ..... Asturian Mining Company—officer, at One.
WEDNESDAY .. Bolanos Mining Company—London Tavern, at One.
British Gas-Light and Coke Company—offices, at One.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

LEAD ORES

TICKETINGS FOR ABOUT 100 TONS (20 CWTS.) NEWTONARDS LEAD ORE.

Douglas, Isle of Man, Sept. 14.

Bidders.	*Price per Ton.*
Thomas Somers—Bristol	£8 8 6
Tamar Smelting Company—Tavistock	8 9 6
Newton, Keates, and Co.—Liverpool	9 0 6
Sims, Willyams, and Co.—Llanelly	9 2 6
Walker, Parker, and Co.—Chester (purchasers)	9 5 6

Sold at Aberystwith, September 17.

Mines.	*Tons.*	*Price.*	*Purchasers.*
Goginan	35	£14 10 0	Walker, Parker, & Co.
ditto	65	14 13 6	ditto
Frongoch	60	9 18 0	ditto
Total tons	160.		

The above is 21 cwts. of DRY ore to the ton.

Sold at Bagillt, Sept. 20.

Black Craig	36	£8 18 0	Newton, Keates, & Co.

Sold in London.

Callington	46	£16 18 6	Sims & Co.

BLACK TIN

Sold to the Union Smelting Company, on the 17th August.

Mines.	*Tons cwt. qrs. lbs.*	*Price per ton.*	*Amount.*
Lewis	19 16 3 7	£45 0 9	£893 11 5
ditto	2 16 0 13	35 8 3	98 7 2
Tincroft	36 11 0 14	37 9 3	1369 9 9

Mines.	*Tons.*	*Price per Ton.*	*Purchasers.*
Polberrou Consols	15¼	£41 0 0	Daubuz and Calenick Co.
ditto	8¾	37 12 6	Williams, and Bissoe Co.
ditto	3¾	38 10 0	Williams and Co.
ditto	1	33 0 0	Bissoe Company.

COPPER ORES.

Sampled Sept. 5, and Sold at the Royal Hotel, Truro, Sept. 20.

Mines.	*Tons.*	*Price.*
Devon Gt. Cons.	101	£7 11 0
Wh. Josiah		
ditto	80	7 13 6
ditto	79	5 1 6
ditto	78	7 5 6
ditto	71	7 15 6
ditto	69	7 11 6
ditto	25	6 2 6
Wh. Fanny	112	5 3 6
ditto	100	5 18 6
ditto	92	5 3 6
ditto	90	6 11 6
ditto	70	6 6 0
ditto	66	4 17 0
ditto	49	6 16 6
Wh. Maria	91	9 16 0
ditto	40	5 1 6
Wh. Anna Maria	75	7 18 0
ditto	38	5 0 6
West Caradon	90	£6 14 0
ditto	72	7 8 0
ditto	55	6 15 6
ditto	42	11 11 6
ditto	40	4 12 6
Fowey Consols	76	8 4 0
ditto	75	7 15 6
ditto	69	3 5 6
Wh. Friendship	94	8 18 6
ditto	80	8 7 0
ditto	43	3 17 6
Poldice	66	5 15 0
ditto	59	5 2 6
ditto	44	4 18 6
Bedford United	71	4 13 0
ditto	63	10 18 6
Wh. Maiden	42	4 13 0
Phœnix Mines	32	5 6 0
Wh. Jewel	23	3 18 0
ditto	5	6 6 6

TOTAL PRODUCE.

Devon Gt. Cons.		Wh. Friendship	217 £1673 11 6
Wh. Josiah	1326 £8786 9 6	Poldice	169 898 11 6
Wh. Maria		Bedford United	134 1018 8 6
Wh. Fanny		Wh. Maiden	42 195 6 0
Wh. Anna Maria		Phœnix Mines	32 169 12 0
West Caradon	299 2179 11 6	Wh. Jewel	28 121 6 6
Fowey Consols	220 1432 6 0		

Average Standard ..... £ 99 17 0 | Average Produce 9¾
Average Price per ton £6 14 0
Quantity of Ore ..... 2467 tons | Quantity of Fine Copper, 233 tons 0 cwts.
Amount of Money £16,475 3 0
LAST SALE.—Average Standard ..... £103 16 0.—Average Produce 8¾
Standard of corresponding sale last month, 94*l.* 1s.—Produce, 9¾.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	208	£1316 3 0
Vivian and Sons	495	3587 11 9
Freeman and Co.	378	1986 6 0
Pascoe Grenfell and Sons	328	3259 11 9
Sims, Willyams, and Co.	378	2453 13 9
Williams, Foster, and Co	526	4096 18 9
Schneider and Co.	154	774 18 0
Total tons	2467	£16,475 3 0

Copper ores for sale at the Royal Hotel, Truro, September 27.—Mines and Parcels.—Consols, 742—United Mines, 613—Treswean, 435—Treviskey, 350—Par Consols, 252—South Caradon, 240—Trethellan, 232—Wheal Comfort, 222—South Wheal

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

"W. P. C."—In answer to our correspondent, who inquires "if a shareholder in a mine upon the Cost-book System, incurs any liability beyond the amount of his shares?—and also, if a mine can be legally carried on without being registered?"—we must refer him to our columns, which have treated on the subject so frequently. We will, however, answer his questions briefly. In the first place, if the system be strictly observed, no adventurer can become liable beyond the current two months' cost; but if debts, or liabilities, be incurred on behalf of the body of adventurers, each individual adventurer is liable to the whole debts. As regards the second question, we have no hesitation in saying, that registration is a farce, as regards mines carried on in the county of Cornwall, where the Cost-book System is recognised, if it be observed—the Stannaries' Court being the security, or safeguard, of the adventurers; but if the mine be situate in Wales, Scotland, or Ireland, we do not consider that a company can be carried on under the Cost-book System; and, if not registered, then are consequently subject to the penalties under the Joint-Stock Companies' Registration Act. We would refer our correspondent to an article in the *Mining Almanac*, p. 237, which treats fully on the subject.

"G. S." (Penarth).—The best accounts of the different sorts of pig-iron, will be found in Mr. Mushet's work on iron, published by Mr. Weale, High Holborn; and also in Scrivenor's *History of the Iron Trade*.

H. Crosbie (Edgeware-road).—Kaolin is the name given by the Chinese to the fine white clay with which they fabricate the biscuit of their porcelain. There are several localities where it was discovered in Europe.

"Devonport."—The inventor of the new rotary engine, with a screw propeller for boats, as described in our last Journal, is Mr. E. Galloway, C.E. Capt. Fitzmaurice is merely a partner in the patent. A letter addressed to our office, will be handed to Mr. Galloway, who will forward any required information.

"A. Z." (Poultry).—In making good writing ink, the great object is to regulate the proportion of sulphate of iron to the galls. If it be in excess, although the ink may at first appear black, it becomes subsequently brown and yellow. Hence some time should elapse before ink is used after the ingredients are put together, in order to be tested from time to time, and the combinations perfectly regulated. Gum is added, to retain the colouring matter in suspension, to prevent too great fluidity in the writing, and to protect the vegetable matter from decomposition. Logwood, and other vegetable astringents, have been tried for atramental purposes, but do not yield a permanent ink. A excellent ink is obtained as follows—but if the paper has been made from inferior rags, or bleached by an excess of chlorine, ink, however good, will be ultimately discoloured:—Aleppo galls, 6 ozs.; sulphate of iron, 4 ozs.; gum arabic, 4 ozs.; water, 6 pints. Boil the galls in the water, then add the other ingredients, and keep the whole in a wooden or glass vessel, and occasionally shaken. In two months, strain, and pour off the ink into glass bottles, to be well corked. To prevent mould, add one grain of corrosive sublimate, or three drops of creosote, to each pint of ink. Sulphate of copper is occasionally added to ink, but it is rather injurious than otherwise.

"J. J." (Truro).—Daniell's or Grove's battery is one of the simplest and most generally in use. The expense of constructing one differs very materially, according to the size. A total novice would experience much difficulty were he to attempt to construct a battery according to the prescribed formula. If we knew what purpose you required it for, and what expense you were willing to go to, we could better advise you.

T. Browne (Truro).—Granites, sienites, porphyries, and greenstones, are plentifully associated with the slaty rocks of Cumberland and Westmorland, about Helvylln, High Pike, Borrowdale, Wastewater, Ennesdale, &c., the granitic rocks generally in great masses, which have burst through the slates; the porphyries and greenstones are often interposed in conformable layers, or passing through rocks in dykes. Similar facts occur in the Lammermuir, in the Snowden ranges, and the slates of Cornwall and Brittany; and in many cases the porphyritic beds have been subjected to the same disturbances as the slates in which they are interlopated.

"An Enquirer" (Southampton-street).—Iron has been wrought in England since the time of the Romans, by whom works were established in the Forest of Dean, in Gloucestershire. In Kent and Sussex, counties well supplied not only with iron ore, but also with timber, the only species of fuel then used in the furnaces, works were also established at a very early period. The production of iron was long retarded, from the nature of the fuel employed in smelting. Complaints were early made of the destruction of timber by the iron works. In the reign of Queen Elizabeth, 1581, an Act was passed, prohibiting the manufacturers of iron from using any but small wood, and establishing new works in any place within 22 miles of the City of London, and 14 of the River Thames, as also in several parts of Sussex. Soon afterwards, Edward, Lord Dudley invented a process for smelting iron ore with pit coal, instead of timber, and obtained a patent for his invention, which was exempted from the operation of the Act 21 James I. c. 23, setting aside monopolies; but the works of the inventor were destroyed by an ignorant rabble, and he was nearly ruined by his efforts to introduce and perfect a process which has eventually proved of immense benefit to the country. For many years the invention seems to have been forgotten, and it was not till about 1750 that the growing scarcity of timber, coupled with increasing demand for iron, caused the revival of the process. The iron works of South Wales and Monmouthshire are comprised in a range of country extending in the direction of north-west and south-east about 25 miles from one extremity to the other. The works at Hirwain, in Brecknock, and Aberdare, in Glamorganshire, form the extreme points to the westward. But the great seat of the manufacture is Merthyr Tydvill, from which there is a continued line of furnaces at Dowlais, Romney, Tredegar, Howey, Beaufort, Nantyglo, Blaenfon, Varteg, Abersychan, and Pontypool. About the middle of the last century, Merthyr Tydvill was an insignificant village. In 1755, the lands and mines for several miles round the village were let for 99 years, at a rent of 200*l.* per annum. The Staffordshire iron-works, including those of Warwickshire, are principally situated in the district which extends from Wolverhampton, round by Walsall to Birmingham, and thence round by Dudley. The principal seat of the works in Shropshire is Colebrookedale, where the improvement of the manufacture commenced. In Scotland, almost all the iron works, with the exception of the Carron, contiguous to the Frith of Forth, and at Muirkirk, Ayrshire, are situated on the Clyde, at no great distance from Glasgow.

"G. F. M." (Cornhill).—Copper, tin, iron, and antimony, as well as other metals, have been discovered in the interior of Morocco, but as the Moors are ignorant of mining operations, they have hitherto proved of little value to the country.

"T. C. S." (Tavistock).—Fifty-three vessels were employed in carrying stone from the Overton Quarry to the Plymouth Breakwater. A load of 50 tons could be discharged from one of these vessels in about three hours. By all these vessels, the quantity of stone deposited in 1812 was 16,045 tons; in 1813, 71,198 tons; in 1814, 239,480 tons; in 1815, 264,207 tons; and in 1816, up to the 12th of August, 206,033 tons, at which time the total quantity of stone sunk amounted to 896,963 tons; at the conclusion of the year to upwards of 1,000,000 tons. Of this quantity, the proportions of the different sizes of the blocks deposited were nearly as follows:—Of 1 ton each stone and under, 423,904 tons; of 1 to 3 tons each, 309,706 tons; of 3 to 5 tons each, 150,593 tons; of 5 tons and upwards, 12,760 tons. The original contract price for quarrying the stone was 2s. 9d. per ton, and the original cost of carriage for conveying it to the breakwater was 2s. 10d. per ton, but the former was reduced to 2s. 5d., the latter to 1s. 10d. per ton. The cost of each ton of stone sunk in the breakwater, including the building of quays, purchase of land, salaries, and every other expense, amounted to about 8s. 1½d. The greatest quantity of stone sunk in any one week was 15,379 tons, and the part of the breakwater above the level of low-water spring tides was in length 1100 yards. The length completely finished to the height of 3 feet above the level of the highest spring tides, and 30 feet wide at top, was 360 feet. The large stones of the upper part of the breakwater were deposited to any nicety, by means of a vessel constructed for the purpose, having the same sheer, or slope, at the bow with the side of the work, so that, by a projecting beam, or mast, the largest stones could be taken out of the vessel and placed on the middle or opposite side, or any part of the breakwater. The total number of persons employed was 675.

Mark Henderson (Glasgow).—A few years after the publication of the *Pantomeira* of Leonhard Digges, giving an account of the burning of the Roman navy by the mirrors of Archimedes, Napier, of Merchistown, drew up a list of "secret inventions, profitable and necessary in these days for the defence of this island, and withstanding of strangers, enemies to God's truth and religion." The first and second of these inventions are burning mirrors, which are very briefly described in the following words:—"1. The invention, proof, and perfect demonstration, geometrical and algebraical, of a burning mirror, which receiving of dispersed beams of the sun, doth reflect the same beams altogether united, and concurring precisely in one mathematical point, in which point most necessarily it engendereth fire; what an evident demonstration of their error who affirm this to be made a parabolic section. The use of this invention serveth for the burning of the enemies' ships, at whatever appointed distance.—2. The invention and sure demonstration of another mirror, which receiving the dispersed beams of any material fire or flame, yieldeth also the former effect, and serveth for the like use." It does not appear that Napier ever condescended to give any further account of these burning mirrors; for when he was solicited, a short time before his death, by one of his most particular friends, "not to bury such excellent inventions in the grave with him," he replied, "that for the ruin and overthrow of man there were already too many devices framed, which if he could make to be fewer, he would with all might endeavour to do; that, therefore, seeing the malice and rancour rooted in the heart of mankind will not suffer them to diminish the number of them, by any new conceit of his they should never be increased."

"A Reader" (Camberwell).—The time occupied in the erection of New London Bridge was 7 years, 5 months, and 17 days. It was first opened to the public July 31, 1831.

D. Forbes (Lillehammer).—Wohler's method of separating nickel from cobalt is as follows:—The arsenic is expelled by roasting the powdered speise first by itself, then with the addition of charcoal powder, till the garlic smell can be no longer perceived. The residium is to be mixed with three parts of sulphur and one of potash, melted in a crucible with a gentle heat, and the product being edulcorated with water, leaves a powder of metallic lustre, which is a sulphuret of nickel, free from arsenic, while the arsenic, associated with the sulphur, and combined with the resulting sulphuret of potassium, remains dissolved. Should any arsenic still be found in the sulphuret, as may happen if the first roasting heat was too great, the above process must be repeated. The sulphuret must be finally washed, dissolved in concentrated sulphuric acid, with the addition of a little nitric; the metal must be precipitated by the carbonated kali, and the carbonate reduced with charcoal. In operating upon copper, nickel, or speise, in which nickel predominates after the arsenic, iron, and copper have been separated, ammonia is to be digested upon the mixed oxides of cobalt and nickel, which will dissolve them into a blue liquor. This being diluted with distilled water, deprived of its air by boiling, is to be decomposed by caustic potash, till the blue colour disappears, when the whole is to be put in a bottle, tightly stopped, and set aside to settle. The green precipitate of nickel, which slowly forms, being freed by decantation from the supernatant red solution of oxide of cobalt, is to be edulcorated, and reduced to the metallic state in a crucible, containing crown glass. Pure nickel, in the form of a metallic powder is readily obtained by exposing its oxalate to moderate ignition.

"Mineralogicus" (Birmingham).—Cinnamon stone is a combination of silicate of alumina, silicate of lime, and silicate of the peroxide of iron; it commonly occurs in masses, which are full of fissures. Its general colour is red, with occasionally a brown or orange yellow tinge, translucent, rarely transparent, fracture flat conchoidal, lustre vitreo-resinous, scratches quartz with difficulty. Before the blow-pipe it is fusible with ebullition into a darkish green glass, and with borax melts very readily into a transparent glass, more or less feebly tinged by iron. It has been found in considerable masses in some of the primitive rocks of Ceylon, and embedded in limestone at Maisjo, in Sweden, but is most commonly met with in grains among the sand of certain rivers, both in Ceylon and in Brazil. The Romanzovite of Nordenskjold, which occurs at Kimito, in Finland, is considered a variety of cinnamon stone.

*** The numerous disappointments in procuring back Numbers during the past year induces us to suggest, that subscribers should be careful in filing, or otherwise preserving, their papers; and where extra copies are required, that they should be applied for as early as possible.

*** We should feel obliged to all pursers, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal.

"A Shareholder" in the Mexican and South American Company must comply with our rule, and authenticate his communication—it will then receive attention.

*** It is particularly requested that all communications may be addressed—

To the Editor,
Mining Journal Office,
26, Fleet-street, London.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, SEPTEMBER 22, 1849.

The Mining Journal is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

In our last week's Number, we inserted a statement to the effect that the Crown had succeeded in their attempt to annul the grant of the Island of Kaw-aw to the North British Australasian Company. If this be really the case, it is a matter seriously affecting the interests of that undertaking. The island was originally purchased by a Mr. Beattie, the agent of the company, from the natives, and was the subject of one of the old New Zealand land claims. At the same time, we understand that the late Governor (Capt. Fitzroy) made a Crown grant to Mr. Beattie, the claimant on the part of the company. The great difficulty of all New Zealand colonists—the land titles question—has been a matter of serious contention in this case. The title to the Island of Kaw-aw was investigated, we believe, by the commissioner appointed by the Crown for that purpose, who reported against it, and it is now disputed by the natives as well as the Crown. In a Parliamentary Blue Book, published about the end of 1847, there is a dispatch to this effect from the Governor, Captain Grey, in which he adds, that "there is no doubt the island was illegally granted, and that it will be necessary for him to take immediate steps in reference to these disputes;" and he goes on to state that he intends to direct an application to be made to the Supreme Court, to order such grant to be annulled. This action was commenced in March last, and, as we have stated, the decision is reported to be unfavourable to the company. An offer, however, was previously made by the Crown to allow the company 800 acres in full of their present claim, and the remainder of the island, or any portion of it, at the rate of 1*l.* per acre. The refusal to accept this offer by the manager we consider to have been very indiscreet. We look upon all opposition to the Crown, supported as it is in this case by the strong opinion of its law advisers, to be entirely futile. Far more satisfactory for the shareholders would it have been had such terms been accepted, which would at once have rendered them undisputed possessors of a considerable tract of land, containing valuable copper mines, saved them from the expense of protracted litigation, and enabled them to ascertain the real extent and value of their property. Instead of which, it appears that, in the event of the Crown succeeding, no definite arrangement was made as to what compensation the company would receive. But even allowing that 800 acres, with the mines, should be delivered up, the loss of the remaining portion must be severely felt by the company in their smelting operations. We hear that large quantities of wood exist on Kaw-aw, which, as yet, must be the principal fuel to be obtained in that locality; while the Crown, or whoever may become the future proprietors of the greater portion of the island, will naturally demand as high a price as they are likely to get for the wood; and it is impossible to tell to what damages the company may be subject from the nuisance arising from the evaporation of the vast quantities of sulphur. The only course which the company could adopt, in the event of losing the case, would be to purchase the island themselves; but this, again, would incur an expense, which we understand that they are far from being in a position at present to afford, and it would much depend upon what terms the Crown would agree to, when they had the power to demand such a price as they deemed equivalent to the advantages to be derived.

In our columns of this week will be found a letter from a correspondent, treating on slave labour in foreign mines, and directing attention to the report of the Imperial Brazilian Mining Company, which appeared in last week's Journal. We cannot but admit with him, that a parade was unnecessarily made of an act of humanity, which, according to his representation, was attended only with a cost of 4*l.* or 5*l.*; and we would submit to the several mining companies, who look for dividends from slave labour, whether it is not their bounden duty to pay the paltry sum, which enables the offspring of the slaves in their employ to be made "free." It would appear that two purchased, or hired, slaves, employed by the Imperial Brazilian Mining Company, proffered their earnings, arising from working overtime, to allow that their child should be free. What will the advocates of the happiness of slavery say to this? How is it, with a company so noble as they have ever acted, so kind as has been the disposition they have evinced, and their conduct towards the slave, that the parents should willingly offer to forego their little earnings, so that their offspring might be free? There is much here for reflection—the feelings of parents must be appreciated, and would appear to have been done so, by Mr. Henwood, whose last act, previous to quitting Brazil, would appear to be that of granting freedom to the child of a slave in the employ of the Imperial Brazilian Company.

In expressing the feelings of pleasure which acts of this kind create, it is, however, only right to make a passing remark on the peculiar features of the case under notice, and having, as we believe, correct data before us, we do not hesitate to express the opinion we ourselves entertain. The Imperial Brazilian Mining Company, which was formed with a capital of 200,000*l.*, in 10,000 shares, and 50,000*l.* premium on their issue, we believe advanced in price, on 5*l.* paid and 5*l.* premium, to 85*l.* per share, or 850,000*l.* as the market value of the mines, which, with 150,000*l.* capital liable to be called, gave a total of 1,000,000*l.* On referring to our Share List, it appears that, on the 10,000 shares, 23*l.* per share has been paid, which, with the premium of 5*l.* per share, on the formation of the company, is equal to 280,000*l.*, exclusive of premiums in the market, while the present value is 60,000*l.* It is, however, to be observed, that some 600,000*l.* or 700,000*l.* profit, or dividends, have been paid to the shareholders during the past twenty-five years, or say 250 per cent., on the actual amount invested; the gold extracted from the mines during the period being upwards of 1,800,000*l.*, so far as a rough estimate affords us the means of arriving at a result. This may be considered as approximating to a fair return, although we should be sorry to advance the opinion as affects our home mines, where we think that, with dividend-paying mines, four to five years' purchase, or, in other words, 20 to 25 per cent. should be received in shape of dividends on investment, of course excluding those adventures which hold out promise, and, like the Great Devon Consols, which from 500*l.* to 600*l.* outlay, became in value, within a few months, 1,000,000*l.* sterling, and now, according to our Share List, are worth upwards of 200,000*l.*; and those of new adventures, the results attendant on which can only be a matter of speculation.

We are, however, somewhat travelling from the subject; yet, in treating on the mines possessed by the company, and the capital invested, with its returns, we feel such points are associated with the question immediately before us—that of slave labour—and the solitary instance, as recorded in our columns over a period of 14 years, of a slave, even as infant born, being released from the accursed chains or bonds of slavery, by the act of a manager, at the cost of eighty to a hundred *shillings*, so as to call for observation. What, we would ask, must be the feelings of those shareholders, who, possessing thousands, when they reflect that a paltry five pounds will release from slavery the child of those who labour and work to render them dividends and the means of luxury. The late Capt. Lyon, to his credit, ere he left the Gongo Soco Mines (worked by the company), from his own pocket liberated half-a-dozen or more children, who, but for the humane act on his part, might now have been employed as slaves. He did not make a "flourish," as our correspondent observes, on releasing one bonded slave at the company's expense, nor did others who we learn have, influenced by feelings of humanity, pursue the same course. It is, we believe, true that the conduct of Captain Lyon was reprobated by the directors, who were sorry to lose the chance of slave children born and bred on their estate, and even Episcopalians, Friends, and those associated with "One and All" sects, whether, as members of Anti-slavery Associations, or attendants at Exeter Hall, willingly and wittingly admitted that course being pursued with a public company, which they must have decried in their private capacity. Mr. Henwood (receiving 1100*l.* per annum), if we are to believe our correspondent (for whom, be it said, we have a high respect, in common with those who know him, and, we may add, he is not unknown to most associated with Brazil), it would appear "has been characterized by his general inhumanity to the whites under his command." It is not our province to enter into matters of this nature, more especially where personalities are introduced.

The question, however, is the simple fact of a child, at a cost of 5*l.*, having been made free. Our correspondent remarks on it as an extraordinary case, which we agree with him upon, and we can only express our surprise that it should form an exception, instead of the general rule; at the same time, we should like to know to whom is the money paid? Is it to the Brazilian States, or to the company?—clearly it is not to the parents?

We direct the attention of our readers, especially those who have an interest in the Asturian Mining Company, to the abstract given in another column, of the contract proposed on behalf of certain parties said to represent Senor Munoz, Duke de Rianzares. We must confess that when, on the 30th August last, we heard the preliminary announcement of the terms, we had no faith in the promise of the chairman, that the contract was as favourable as represented, and our anticipations, we find, fully justified. In terms, the proposal is simply that the Asturian Mining Company should hand over its moveable property for the bills of God knows who, payable God knows when; to deliver up the concessions, lands, buildings, and plant of every kind, without *any security* whatever; and to charge the same with 35,000*l.*, without any consideration whatever, and another 35,000*l.*, when about 11,600*l.* shall be paid by MM. Munoz and Grimaldi, who are the proposed assignees. These, however, are not the most objectionable features of the contract. There is one which must appear infinitely worse to English men of business—viz., that the contractors, who are to have only 35,000*l.* invested, shall have in effect the whole direction of the affairs, by means of the absolute nomination of all the *personel* of the staff, and the majority of the direction; and that, where our shareholders have admittedly invested upwards of 200,000*l.*, which by the present arrangement is reduced in value to 105,000*l.*

This is not all; but, as if we had not enough of the results of working in the dark with foreign adventurers, our English shareholders must be led by the nose, and allow Messrs. Munoz and Grimaldi to have the drawing up of the statutes whenever they please, according to their goodwill and pleasure, and to carry on the company as they please, so that the contractors may, if they think proper (having the majority in the direction), saddle the English proprietors with any amount of liability.

Let the shareholders harken to the voice of prudence in time—let them leave nothing to chance—let the statutes of the new company, and the liabilities of its members, be defined under sound legal sanction in this country, as well as in Spain, insisting on the majority of the new board, and excluding, of course, the former directors; let the payment of the money (35,000*l.*) be guaranteed by solvent security, or paid down; and then, above all, give no inch of the property, no single share, before the whole of the money is paid. Till then, let the property be held by the old company's trustees, and revert to the company in case the treaty be not fulfilled. Lastly, let them see that they are treating with honourable and solvent men. In the train of Munoz and Christina, there are a set of parasites, whose very touch is contamination. Is the party in question the Duke de Rianzares? We believe the Duke has a brother. We have looked to the Spanish directory, and find the Conde de Retamoso is named Juan Antonio Munoz y Funes. Is the discrepancy in the name of the contractor accidental, or is the Count del Reitemoso a different person?

If all these points be not satisfactorily arranged, no persuasion, or threat of loss, consequent upon a refusal, should induce the English shareholders to form a connection with the contractors. No; if there must be a sacrifice, it is better it should be now, than in three or four years' time, when it might be called for with accumulated liabilities. We are anxious to know how the committee of investigation has dealt with this part of the case submitted to them. If we find them recommending this contract in its present shape to their constituents, we cannot but suspect collusion with the directors. It is unfair to prejudge them, however. The shareholders must depend on themselves; they must attend the meeting on Tuesday next, and support this committee, if they be right, and otherwise supersede them and appoint others, who will do their duty fearlessly; for there must be an inquiry—a full and searching one—as we are well convinced that there has been a serious dereliction in the management of the company's affairs—where that has taken place must be ascertained.

The excitement at the Cape of Good Hope, occasioned by the endeavour to impose upon that colony the convicted felons of England, Mauritius, East India, and China, again draws our attention to the subject, briefly noticed in the *Mining Journal* of the 2d June. Whilst the Government perceives the strong determination of the industrious and prosperous colonist to oppose the introduction of condemned and convicted criminals into their society, it becomes us to consider the prudence, or policy, of such a measure, as well as to concert a more reasonable or practicable mode of employing, or punishing, men who, for their violence and resistance to the laws, are deemed by an established judicatory of their country to be unfitted again to mingle with honourable society. If men convicted of a crime, or crimes, are to be expelled from that community whose laws they have disregarded and violated, we certainly conceive they merited that punishment which was manifest to them would be the result of their crime. Then punish—not send them among a community of loyal, moral, industrious people, to create disaffection to the laws, trample on morality and virtue, and introduce the seeds of indolence, vice, and misery, thereby offering a bounty, or premium, for crime.

If men have physical energy sufficient to break the bands of that law, the establishment of which is intended to unite the whole family of man into one common feeling of harmony, mutual co-operation, and unanimity of purpose, they are equally capable of enduring that punishment the breaking of such laws would inflict; then enforce stringently a punishment adequate to the crime, with a view of detering a repetition of the offence by others. We would not, by a false notion of sympathy, or too tender a feeling of merciful consideration, send them gratuitously to a country where a well-disguised effort of apparent contrition for a few years will place them in a position to mingle with a people who, having experienced severe trials, and performed arduous labour, by unceasing enterprise, by loyalty to their country in defending aggression, and by reverence to the laws of God and man, have secured to themselves a peaceful and prosperous colony. We do not consider it prudent policy of a Government, or an act of wise jurisprudence, that men, who have disregarded all laws and people should be thus forced upon and participate in the enjoyment and happiness secured by the exertion of others. All civilised countries, we believe, have found means of applying the labour of convicted criminals to the benefit of the State, or to assist in supporting the expenditure of the establishment created by their own transgressions; nor is it but reasonable to compel those who break the laws to support themselves within the pale of their imprisonment.

We have, at the present time, hundreds of thousands of acres of Crown lands in Great Britain capable of cultivation, and a large portion of which are well known to be highly mineralised; and we have before suggested that an immense tract, now lying dormant, fully adequate to an extensive trial, on which a prison has been built at an expense of 130,000*l.*, now fast going to decay, in the centre of a royal demesne, could be made applicable to the object in view—namely, rendering it a source of creative capital, by employing the convicted felon of our country in bringing this isolated district into cultivation, planting or developing the vast mineral lodes with which the whole abounds, and which, if once opened productively, would be readily carried out by private enterprise. A well-directed system of organisation and management would soon change this now deserted locality into productive corn-fields, thriving plantations, and the whole into a scene of active industry; and, at the same time, inculcating habits of labour to those who have hitherto been accustomed to live on the exertions of others, and the sweat of honest men's brows.

We would most emphatically impress upon the Legislature an early attention to a measure of this kind, because we believe it practicable, reasonable, and equitable. And if men need be sent to our prosperous colonies, we have thousands of the industrial classes—mechanics as well as peasantry—who would rejoice at having the opportunities afforded them,

which are given to these outcast of society, of carrying to a fairer field of enterprise the abilities which they possess of becoming well fed and clothed by their own exertions, and escaping that poverty, starvation, and wretchedness that now surrounds them.

The Dutch Government appear disposed to treat the threatened inundation of gold from California, coupled with the ample supplies already furnished from the Siberian mines and washings, in a rather more serious point of view, then here or elsewhere would seem to be considered necessary. A project of law has made its appearance at the Hague, proposing to *demonetise*, or call in from circulation, the gold pieces of 5 and of 10 florins, which are to be provisionally replaced by paper money, until the State shall be disembarrassed of the gold at a convenient rate of value, and that its exchange against silver money may be advantageously operated.

In the preamble of motives for this decree, the Finance Minister observes, that since it is known that the Ural mountains in Russia, and the mines of California, produce so large a quantity of gold, prudence exacts that, with the prospect of an extraordinary depreciation of this metal at a period more or less near, it will be advisable to retire from circulation the gold of Dutch coinage, so as still to be enabled to dispose of it at such slight sacrifices, as shall cost but little to the nation, whilst longer delays would only expose to the risk of gold becoming as enormously depreciated as silver was after the discovery of America. The minister adds, that if within a few years gold should lose one-tenth of its value, prices would rise in a proportionate ratio, and the nation would have the right to complain of the want of foresight in statesmen, who should have hesitated or recoiled from making a feeble sacrifice whilst it was still time.

It is not improbable that this Dutch financial project may shortly find an imitator, to a certain extent, at least, in Belgium, where it has already excited a lively interest. Indeed, it is argued that Belgium may be materially prejudiced, if the most rigid measures be not forthwith taken by the Government for prohibiting the circulation of these Dutch gold coins, and that they be no more received in the Belgian State treasuries, in payment of taxes and duties, or have, as at present, a compulsory legal currency in the kingdom, as otherwise the country would be inundated with Dutch gold, and thus the loss upon it, calculated upon by the Dutch Government in a future not far removed, would fall entirely upon Belgium.

It may be worth while to remark, however, that there is an error in assuming that silver became so suddenly and enormously depreciated after the discovery of America, as is asserted in the preamble of the Dutch decree before referred to. Very many years passed away after the discovery of the new world, before any extraordinary amount of silver was obtained, or the great silver-producing mines of Peru and Mexico were found and worked. The quantities at first met with by the conquerors among the natives and their princes, or in the temples, in the shape of fabricated ornaments and idols, although large for individual booty, was not at all sufficient to create any revolution in values or prices, or materially to affect the exchangeable value of the metal anywhere.

The English public are aware that a project has been put forward by Mr. Whitney, of New York, for a railway to the Pacific, the length of which would be 2030 miles; but, perhaps, neither the practicability of the work, nor the extent to which it has found favour in America, is sufficiently appreciated. Mr. Whitney proposes that the route should commence at Lake Michigan, to which point there is already steam communication from New York, and that it should thence proceed to California. For its construction he asks no capital, but simply that Congress should grant 30 miles of land on each side of the line at 10 cents per acre, which land is at present for the most part worth nothing, and could only be brought into value by the opening of the road. Possessed of this grant, the projector would require sufficient to be sold to construct a section of 10 miles, and as the land at the commencement of the route would lie in settled districts, and would, therefore, unlike the rest, fetch immediately a good price, he would not only have no difficulty in finishing this section, but would have a considerable surplus of property on each side of it for future contingencies. The construction of the first 10 miles being completed by the sale and settlemen of the lands through which they run, the next 10 miles, instead of starting from an unimproved and unpeopled spot, would then pass through a district rendered valuable by the population which had advanced towards it, and in this way, bit by bit, the work would be steadily completed. For 800 miles, the country which the road would traverse would be of the best description for settlement, more than 500 miles being without timber; and so far from the proposed grant of 30 miles on each side being likely to interfere unfavourably with the revenue from the public lands, there can be little doubt the tide of settlement it would attract would ultimately enhance the value of the surrounding ungranted districts to a degree far beyond what the whole would have produced but for the existence of the road. For seven years—that is to say, ever since the settlement of Oregon—the projector has laboured at this scheme, apparently with increasing confidence in its perfect feasibility, although with little encouragement, until the discoveries in California brought the public to his side. But there are still many difficulties to be overcome in the shape of local jealousies, several States of the Union being ready to oppose the general plan, in order to support any other route that would run through their own lands. The select committee in Congress, however, to whom it was referred, have declared it to be as simple as it is vast, and that they see no insurmountable difficulties in the way of its successful accomplishment. It has also received the approval of 19 different States, in most of which the desirableness of the scheme has been unanimously urged. Mr. Whitney calculates that the whole line might be completed in 15 years, and there are some who believe that if it were to succeed America must become the axle upon which the whole world would revolve. "It would (it is remarked) place New York within 25 days, and London within 37 days of China, and open the immense wilderness of American waste lands with its very finest soil to the overgrown populations of Europe and Asia." One feature of the plan is, that even in granting the now valueless lands, the Government are to run no risk of granting them in vain. It is proposed that 200 miles of the road shall be surveyed, and 10 miles of it be brought into working order before a single acre of the land shall be sold to reimburse the outlay, and even then, only half of the 30 miles on the sides of the completed section are to be given up, the other half, as well as the portion of the line that has been constructed, being retained by the Government as security for the completion of the remainder. With an unselfish zeal which, at all events, shows the earnest sincerity of his purpose, Mr. Whitney defers his own title to recompense until 10 years after the whole line shall have been in active operation, when the remaining unsold lands would be transferred to him or to his heirs, the railroad itself being in perpetuity the property of the nation. A bill, enabling him to commence the road, will be brought forward in the next session of Congress, and its success or rejection will form one of the most interesting questions of the present time. Thus far the vastness and novelty of the plan have constituted the only ground for scepticism; but, with the history of Fulton and Dewitt Clinton before us, it hardly seems probable that an objection of this kind could long prove a bar in any case of American enterprise.—*Times.*

Arrival of Gold.—Messrs. Gee and Co., of Hull, per Mr. Oliver Lyndall, delivered on Monday morning, at the Bank of England, about 80,000*l.* in gold bars, ex *Helen M'Gregor*, from St. Petersburgh, on account of the Russian Government. The amount of bullion delivered on Saturday last, ex *Calypso*, from Valpariaso, was about 2,600,000 dollars, of which about a fifth part was in gold dust from California, and the remainder in dollars, which will add about half a million to the stock in the Bank vaults.

Bank of England.—At the meeting of proprietors, on Thursday last, the dividend declared was 3½ per cent., free from income tax; and it was explained that the profits of the period would not admit of a greater distribution on the present occasion, due regard being paid to the maintenance of the "rest" at something above 3,000,000*l.* This view, however, was opposed by Mr. P. de Winton and Mr. Fielder, by whom amendments were respectively moved for an increase of the dividend, one to 4½, and the other to 4 per cent. In the course of the discussion which subsequently occurred, it was evident that the feeling of the great majority in the Court was to adopt the distribution proposed by the directors, and hence, notwithstanding the positions assumed for making an increased dividend were attempted to be supported by statistical *data*, the amendments were severally defeated, and the original motion was carried, with scarcely a dissentient voice.

South Sea House.—A half-yearly court of proprietors was held at the establishment, Threadneedle-street, on Thursday,—Charles Franks, Esq., in the chair,—when a list of seven gentlemen, proposed as the committee of bye-laws for the year ensuing, was agreed to.—The names of the committee were—B. Harrison, W. Gausson, E. Goldsmid, Sir C. S. Hunter, A. F. Maitland, Thomas Ponton, and C. G. Thornton, Esqs., all holders of 2000*l.* and upwards of the company's stock.—The secretary read the account of the broad debt of the South Sea Company, from which it appeared there remained still a balance of 4600*l.*—This being all the business to be transacted, the court adjourned.

THE COAL TRADE IN FRANCE.

[FROM OUR PARIS CORRESPONDENT.]

I saw, the other day, in one of the London journals, an extract from a Newcastle or Gateshead paper, stating that well-informed persons in the coal districts of the north of England had received information to the effect that the present Government of this country intends very shortly to lower the import duty on English coal. I am sorry not to be able to confirm the information of your local contemporary; but, on the contrary, to be obliged to assure you, that it has not the very slightest foundation in truth. We are always ready to believe what we wish, or what it is our interest to believe; and so it is not unnatural that the coal people of the north are continually flattering themselves with the hope of a speedy modification of the French tariff in their favour. But if they would just take the trouble to reflect, they would feel that it is not at all likely that, when the state of political affairs is so disturbed, and when the country is still writhing from the effects of the great political and social convulsion of February, 1848, any meddling with tariffs can seriously be intended by the Government, or, if intended, at all likely to be adopted by the Legislature; nay, I will add that, if both Government and Legislature were in favour of the admission of English coal on more favourable terms than at present, I, for my part, should not be at all sanguine that the measure could be carried out, for I know that the protectionist party in this country is immensely powerful, and that it would create tremendous clamour and popular excitement against any encroachment on its privileges. Besides, the fact is that, at this moment, the working of the coal-pits is so slack that the miners are both distressed and discontented; moreover, the coalowners have not only immense stocks on hand, but they have suffered dreadfully from the revolution—so dreadfully, that even the gigantic monopoly of the Loire district has not paid any dividend. And, assuredly, it would be a bold thing for any Government, at such a crisis as the present, to excite the hostility of these men (who have at their beck thousands of the most turbulent portion of the population) by any concessions in favour of the foreigner.

It is true that, some weeks ago, the Minister of Commerce, in answer to the representions of the manufacturers of Rouen and other places, let fall some observations as to the necessity of altering the coal duties. The Rouen people interpreted this to mean that they might hope for a change in the duties on *English* coal; but the Minister, it appears, only referred to changes in the duties on the import of *Belgian* coal, though he ought to have known that the Rouen people almost exclusively consume that of England. The Minister sent a gentleman to Belgium to make inquiries respecting the operations of the tariffs; but no other steps have been taken, and I apprehend that Belgian coal has now as little chance of being favoured as English.

The use of coal in this city is gradually, though slowly, increasing. If it had not been for the revolution, I am convinced that, by this time, coal would have been almost as extensively used in Paris as at Lille or Douai. A good deal of the coal consumed here comes from the Valenciennes basin; some also from England; but the greater part is from Belgium. If, however, the duties were reduced, I have no doubt that the English could undersell the Belgians, or, at least, obtain the preference, as their coal on the whole is much superior. I see that some coalowners have established offices here for the receipt of orders for English coal. This is a good plan, and was strongly recommended by me in letters published *in* the *Mining Journal* about two years ago. The French, though the most fickle people in the world in many respects, are, in matters of business, the most routine of any in Europe; and if they once got in the way of receiving coal from Belgium in preference to that from England, it would be difficult to break them of it, either by superior quality or cheapness. Hence it is important for English coalowners to establish transactions with them, more with a view to the future than the present. It is gratifying to find, that in all the manufacturing districts the demand for cheaper coal is becoming every day stronger. Without cheap coal and cheap iron, in fact, how is it possible for French manufacturers to hope ever to approach their English competitors? In Alsace, the manufacturers are particularly energetic in their demands; and, at the recent sitting of the Council-General, the National Assembly was denounced in no measured terms for rejecting a bill for forming a railway from Strasbourg to the Bavarian frontier, which would have enabled Bavarian coal to be obtained a trifle cheaper. It also loudly insisted on there being no delay in the construction of the railway to the Prussian coal-basin of Saarbruck.

Within the last few years the consumption of coal has increased in an extraordinary manner in all parts of the country. It is already so considerable, that there is difficulty in meeting the demand; but instead of getting over the difficulty by the sensible plan of abolishing or reducing the duties on imports from abroad, what think you the mining department of the Government has done? Sent out circulars to manufacturers and others, containing instructions as to the most economical way of burning coal, or making coke, &c. It is alleged that, by the means indicated, a considerable reduction in the quantity of coal consumed has been obtained during the last three years—some accounts say as much as from 15 to 30 per cent.; but is it not probable that this saving in quantity is not one of money?

Accounts from the department of the Haute Marne, the principal iron district of this country, are far from satisfactory. The Council-General of the department has even considered it necessary to call on the Government to afford assistance to the iron-works. Only two or three iron-works are now in operation. Orders do not arrive; there are large stocks of iron on hand; there is discontent at the delay in constructing railways to the coal districts—in a word, things are in a bad state, and every one is grumbling.

The *Journal des Chemins de Fer* complains that no information respecting the real situation of the coal mines and railway of the Grand' Combe has been communicated to the shareholders for a long time. The managing director has, it appears, resigned; but not been replaced.

Contracts for British Iron.—The financial committee of the East India House will receive proposals, on the 26th inst., for supplying the company with British iron, and on the 3d October for the supplying of best plate-iron.

Contracts for Pig-Lead.—The Commissioners of the Admiralty will, on Oct. 9th, receive contracts for supplying her Majesty's dockyard at Chatham with pig-lead and white-lead, and her Majesty's dockyards at Deptford, Woolwich, Chatham, Sheerness, Portsmouth, and Devonport, with red-lead.

Iron Houses for California.—The *Journal de Liege* states that the iron proprietors of that district have seldom been more busy than at present. At the celebrated establishment of Seraing, and others near Verviers, a great number of cast-iron (corrugated) cottages and warehouses have been constructed, and shipped at Antwerp for the gold regions of California, and others are to follow. They are got up in a very tasty style, durable, commodious, and at low prices. A chapel and church in iron have been made for the Missionary Society of Brussels, which had attracted great curiosity, as several of these divines are going out to the El Dorado. At the extensive iron-works of St. Etienne, Couilet, and others in France, iron-houses are greatly in demand, and many of them have been shipped from Bourdeaux and Havre to the same destination. Now that affairs are more tranquil in France, a great many Englishmen are employed in the iron foundries, steel factories, and the engine and machinery works. Many iron dwellings have not only been made in London, Birmingham, and Manchester, but at Glasgow and Greenock, for California. It is expected that, in consequence of the climate, they will be adopted in preference to every other description of building material.

The Electric Telegraph in Spain.—We stated, some time ago, that a commission had been appointed in Madrid, by the Minister of Public Works, to visit England, France, Belgium, Germany, and the United States, for the purpose of examining the different systems of magnetic or electric telegraph communication adopted by the railways and private companies in those countries. This commission, comprised of some of the most experienced engineers, have made their report to the Government on the subject, and also on the different improvements made of late years in mining operations, and how far they would be available to the working of the mines of Spain. In consequence of the favourable report on the electric telegraph, it has been laid down from Madrid and Valentia, and along the railway to Barcelona, and gives the greatest satisfaction. Arrangements are making to extend it to Cadiz, thus taking the whole of the Mediterranean to the Atlantic; and as the projected railways are carried out, which there is now every chance of being effected, in consequence of the alteration in the tariff admitting British machinery, locomotives, steam-engines, rails, &c., and mining materials at a trifling duty of from 1 to 10 per cent., the electric telegraph and railways will, no doubt, in a few years, become as general in Spain (trunk lines) as in this country and the continent, for the Government is most anxious to give every facility to such speculations and mining adventures.

PURE WATER FOR DOMESTIC PURPOSES.

As the great importance of obtaining at all times pure water for culinary purposes is generally admitted, and as during the presence of an epidemic disease, similar to what is raging at present, the case becomes of tenfold interest, every information on the subject is desirable. Dr. Angus Smith has devoted much time and attention to the state of the air and water of towns—that of the former being closely connected with the latter; and we proceed to give some information thereon from a voluminous report, made by that gentleman to the British Association, and published in their *Proceedings* for 1848. From this we learn, that what the air contains, the water may absorb; what the water has dissolved, or absorbed, it may give out to the air. Whatever the rain meets with in its course, from the surface to the wells of a town, is, if soluble, dissolved in the water. The enormous quantity of impure matter filtering from all parts of a large town into its many natural and artificial outlets, does at first view present us with a terrible picture of our underground sources of water; but when we examine the soil of a town, we do not find the state of matters to present that exaggerated character which we might suppose. Filters, for instance, do not become dirty in proportion to the amount of impurity which they seem to remove. The sand at the Chelsea Water-Works contains only 1·43 per cent. of organic and volatile matter after being used for weeks, which cannot be considered impure in a very high degree. A remarkable fact connected with the waters of towns is the presence of nitrates. Dr. Smith has examined the springs of all parts of London, and found these salts more or less in all. Liebig found the nitrates in 12 wells which he examined in Giessen, but none in wells 200 or 300 yards off; and it would appear that there is a constant formation of nitric acid under towns, in close situations under streets and houses, and in undrained ground, according as it is saturated with animal matter, in sewer water, in the Thames water, and in all dirty streams into which sewers empty themselves. These nitrates decompose organic matter, which is, doubtless, an important provision of Nature for the prevention of the evil consequences of putrefaction. It is the complete destruction of all dangerous gases, and the perfect purification of the most impure substances; but whether it is advisable to drink water having much of this oxidised matter, is another question. We here, however, see the two great agents of sanitory improvement at work for us—the air and the water acting through the soil as a filter.

As the water of the Thames nearly concerns the population of the metropolis, we will follow it from its source:—Water from the Seven Springs, or from Thames-head or Andover Ford, proceeding as it does from the rock, is in the perfectly oxidised state of which we have been speaking It contains a great deal of carbonic acid and of lime in solution. When allowed to stand, it preserves its great purity, or clearness of appearance rather, any length of time, not appearing to change. Such water as this requires no managing; it would be a good thing if it could at once be introduced into houses—it is, in fact, spring-water from the rock; and such water is known to be always good, unless the rock contain deleterious substances. Rocks, of course, are found which give out a water much freer from lime than the water of the Thames sources—such, for example, as those between Lancashire and Yorkshire. At a place called Swineshaw, on one of these hills, a stream gushed out from the hard and insoluble rough rock of this place, having the purity of average distilled water, with a sparkling appearance and agreeableness to the palate which distilled water never has. When we come down to Pangbourne, the water cannot be said to have become much worse; it is still so pure as to require a considerable time to form a deposit, and that only small, containing a few plants and some animalcules, from 1·2000th to 1·3000th of an inch. Here there is a slight, but still decided, trace of organic matter from animals. There has been an increase in the hardness also. At Windsor, animalcules begin to show themselves more prominently in the water, and these rather large hydatina. There are also at Reading and Oxford some of the smaller green narviculæ, and several of the other smaller green bacillaria. Oxford water had more of them than Reading, and also a large amount of matter in solution. It is probable that the soil through which the Isis flows is rather different from the other part of the Thames. The river was rather high at the time. From Richmond downwards, the case is much altered; and the water, although clear, gives after a time a brown flocculent deposit, entirely distinct from the mud deposit, which has been carefully removed beforehand. This flocculent deposit contains many animals, large and gelatinous-looking; also below Chelsea, and chiefly below Hungerford-market little ells, *Vibrio fluviatalis*, about 1-30th of an inch long. We cannot devote more space to this interesting report; but from it we find that filtration, if it does not alter the chemical character of water, is at least necessary for purity from organic matter—that water should never be kept in dark tanks under ground—and that water can never stand long with advantage, unless on a very large scale, and should be used when collected, or as soon as filtered.

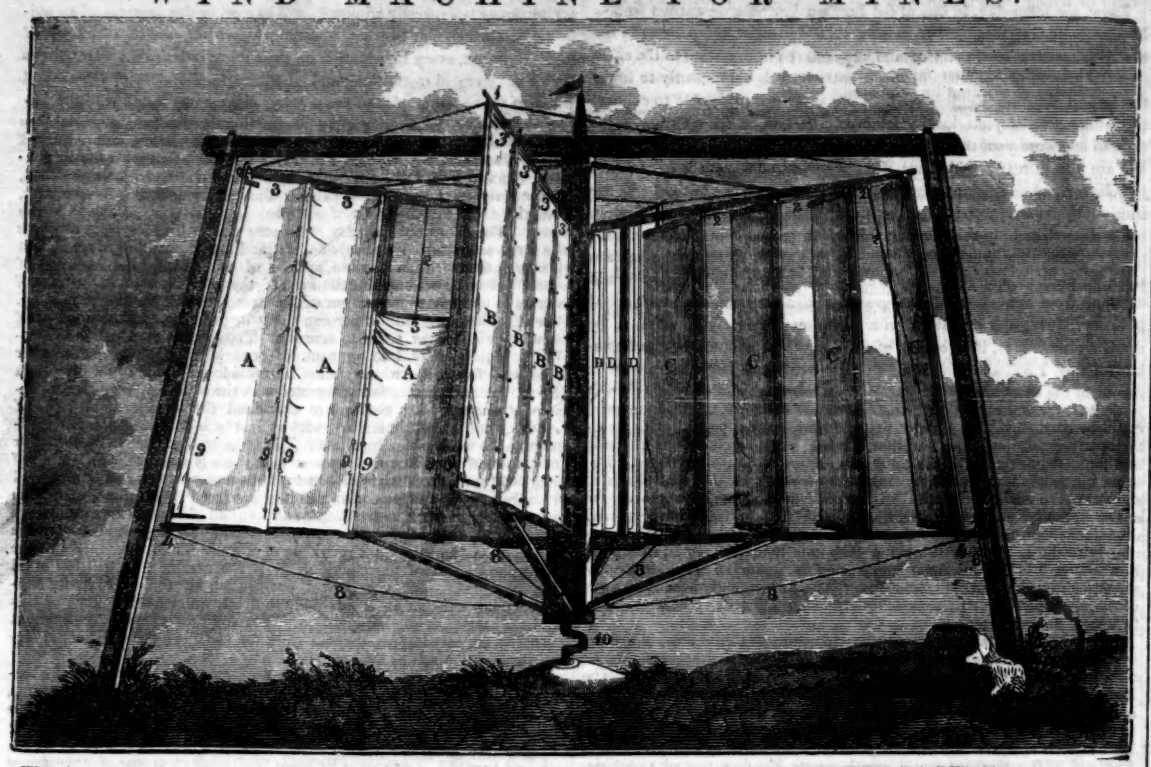
THE NORTHERN PITMEN.

A great meeting of the pitmen of Durham and Northumberland was held on the Black Fell, near Wreckenton, about four miles from Newcastle, on Saturday, the 15th inst. There were some 5000 or 6000 present from various collieries of the Tyne and Wear. The object of the meeting was to consider the propriety of re-organising the union which formerly existed amongst the pitmen of the north, but which since the late disastrous "strike" has ceased to exist. The chair was taken by a pitman named Richard Hodgson. Several pitmen addressed the meeting, denouncing the alleged tyranny of their employers, and recommending that the union be re-organised for the purpose of removing the grievances of which the pitmen complain. The resolutions, which were unanimously adopted, were—1st. "That experience has shown that where the miners of this district are disunited their wages always decrease, fines are increased, measurse tubs are enlarged, additions made to the standard weight, &c., all of which form an aggregate reduction of our earnings, within the last few years, of about 33 per cent.; that from the almost general attempt made during this year by our employers still further to reduce our wages, this meeting pledges itself to use its best endeavours to unite the whole of the miners in the district, as being the only remedy against such continued and extensive reduction in the price of our labour." The second resolution recommended the adoption of some measure for regulating the price of their labour, so as to ensure employment to all their brother miners, and produce a greater uniformity in their future earnings. The third resolution referred to the immense sacrifice of human life in local mines, as calling aloud for legislative interference in providing an efficient system of inspection by practical men, and that such inspectors be empowered by Act of Parliament to enforce the healthy and safe ventilation of mines, by compelling the use of brattice, stoppings, doors, and proper air ways. The meeting pledges itself to use all constitutional means to obtain the introduction of a bill embodying these provisions in the next session of Parliament.

Mr. Wyld, M.P. for Bodmin, addressed the meeting at some length in support of this last resolution. He stated that he had travelled 500 miles, from the extreme end of Cornwall, in order to attend this meeting. He had no interest whatever in coal mines, and his attention was first drawn to the subject by having witnessed the effects of a dreadful colliery explosion. The scene which he then beheld he could never forget, and he inwardly resolved thenceforward to devote himself to the object of obtaining a proper system of inspection of coal mines, and an efficient plan of ventilation. He had sufficient confidence in the good sense and humane feeling of the country to believe that these measures, though delayed for a time, would be ultimately accomplished. Mr. Wyld then adverted to the appointment of two inspectors by Sir George Grey—viz., Professor Phillips and Mr. Blackwell. This, he remarked, was merely trifling with the question. What could two men do in the inspection of the 200 collieries of this district. He proposed that there should be 12 or 14 inspectors appointed. He estimated their salaries at an aggregate of 6000*l.* a year, which he proposed should be raised by an additional levy upon the collieries of 3d. in the pound on the poor-rate valuation. He concluded by declaring that his whole energies should be devoted to the carrying out these objects, which he considered were for the benefit of the masters as well as the men, and he hoped the time was not distant when he should again meet them to congratulate each other on their success.—The meeting separated, after giving three times three cheers for the hon. Member.

Electric Telegraph on the Continent.—The Prussian Government has arranged and intends throwing open to the public, on the 1st of next month, five grand lines of electric telegraphs, which place the capital of Prussia in direct communication with almost all its frontiers, and, consequently, with the conterminous states.

WIND MACHINE FOR MINES.



The above diagram represents a simple but powerful machine for pumping or winding, acted on by the wind, from whatever quarter it may blow, and which was some years since in operation at Whidden Mine, Cornwall. It consists of an upright shaft, turning in a strong frame, and having a crank at 10, for working the machinery requisite; from this shaft four sets of horizontal bars project at right angles with each other, and which carry the sails, A, A; B, B, four sails on the point of receiving the wind; C, C, four sails on which the wind is acting on the back part; here there is nothing to prevent their opening, consequently, the wind passes through the frames, and in rotation as they take the place of B, B, they will close, and become the acting power; D, D, the sails opposite B, B, coming round, and which are opening at the same rate at which B, B, are closing; 1, 1, eyes in the corner of the frames; 2, 2, lines which after passing through the hanks hung to the horizontal yards or spars, enter the eyes, 1, 1, and through on the other side, as seen at A, and fastened to an iron slip, attached to the canvas at 3, 3; 4, 4, the plugs to which the lines are hitched while the sails are up close; 5, an iron bar, which being let drop on the cleet at 6, as the quarters come round against the wind, resists the small bar, 7, which, turning suddenly, throws off the line at 4, when the sails instantly drop, as partially shown at A, and the machine stops; 8, 8, the lines by which the four upper lines are recovered, when it is required to hoist the sails; 9, 9, the rods that carry the rings on which the sails run up and down. For all purposes requiring check and regulation, motion is given to the machinery by cog-wheels and pinions, but for pumping the crank, as shown at 10, is sufficient. The power of a machine on this principle, measuring 24 ft. from the centre of the axle to the end of the span, placed in a proper situation, is capable of working a 6-inch box 30 fms. The economy of these machines, both in first cost and wear and tear, render them very eligible, in many situations, for sinking new shafts and working mines at shallow levels; they can be erected on an elevated spot, and the power transferred a considerable distance by rods.

We hope to be enabled, in our next publication, to furnish an engraving and description of Messrs. Clarke and Motley's design for a steam-carriage and omnibus, now constructing for turnpike-roads, which they have patented and just specified. Among other important improvements and inventions secured by them, is a method of obtaining and applying motive power, a steam pile-driving engine, excavating and boring machines, timber tracks for public roads, method for timber street paving, &c., iron beams, viaducts and bridges, and important improvements in the construction of railways for agricultural and other districts—and last, not least, we think, a great improvement in the construction of floors of buildings fire-proof, on an economical plan, which is not only applicable to new erections, but may be *applied to existing buildings, such as warehouses, manufactories, mills, &c.*, very economically—viz.: at not exceeding from 6d. to 9d. per superficial foot—so that a floor of 50 feet long and 20 feet wide may be rendered fire-proof for about 30*l.* We refer our readers to Mr. Motley's letter in another column, in answer to our correspondent, "Engineer," wherein is described the plan of their improved method for constructing railways, so as to save one-third of the timber and two-thirds of the iron.

ANGLO-ITALIAN RAILWAY.—The decree just granted by the Grand Duke of Tuscany to this company extends the term of the lease of the Maria Antonia Railway, from Florence to Pistoja, from 60 to 100 years, and guarantees, on certain conditions, a minimum interest of 4 per cent. on the original capital (8,000,000 of Tuscan livres, or 265,000*l.* sterling) on its completion to Pistoja. The decree obtained by the Count St. George, resident director of the company in Italy, directs that the works on the second division of the line, from Prato to Pistoja, are to be commenced on the 15th of October next at the latest, and before that date a deposit of 1,000,000 of Tuscan livres (about 33,000*l.*) is to be made with the Tuscan Government, to bear 4 per cent. interest, and to be employed in the payment for land and works on the second division.

BELGIAN RAILWAYS.—Considerable dissatisfaction has been expressed by the existing Belgian Railway Companies at the resistance offered by the Administration of Public Works to the introduction of foreign capital for the completion of certain of the lines. The East Flanders line ought, according to the original contract, to comprise a main line from Bruges to Courtrai, by Thouront, Lichtervelde, Roulers, and Harlebeke, united at each end to the stations of the State lines. From the central station at Lichtervelde, two branches were to be formed, one to Dixmude, and one to Thielt and Aeltre, where it was to be jointed to the State line half way between Bruges and Ghent. Furthermore, the Bruges and Courtrai line was to be extended with a view to a new communication with France by the Lille and Dunkirk line. The line from Bruges to Courtrai was opened in 1847, but circumstances did not allow of the construction of the branches. The contract stipulated for the yearly payment of 12,000 fr. for the expenses of Government superintendence, which sum was paid during the progress of the works, but the Government insisted on the payment during the suspension of the works also, even when the main line produces only sufficient to pay for the working. The opposition of the Government is thought to be the more extraordinary as the necessary capital will come from abroad, and the greater part of the profits will remain in the country.

CHARLEROI AND ERQUILINES RAILWAY.—The ironmasters of the Sambre district have made an offer to assist in the execution of the line from Erquilines to Haumont, as regards a considerable portion of the material required for its completion, and taking to the extent of one-half of the shares.

EASTERN COUNTIES RAILWAY.—The assessment of this company to the poor-rate in Bethnal-green has been increased from 4300*l.* to nearly 8000*l.*

WINDSOR RAILWAYS.—The Great Western Company are working day and night to complete their line into Windsor, where the passenger station is nearly erected. It is expected that the line, which will give a direct communication between London and Windsor, will be opened on the 1st of October.

NEW GAUGE OF RAIL FOR BRANCH LINES.—A new plan has just been proposed by Sir John Macneill, the engineer, for working branch railways in districts where the traffic would not warrant a more expensive system, by a gauge of 3 feet 10 inches, instead of the present gauge of 4 feet 8 inches, with locomotive engines and plant to correspond.

GREAT WESTERN RAILWAY.

It appears from a statement of the liabilities of this company, prepared by Mr. Hutton, the official assignee, of Bristol, that the debentures outstanding on the 30th June last, amounted to 3,253,722*l.*; loan notes, 885,024*l.*; loans raised upon the company's subscriptions to other lines, 993,180*l.*; total loan debt, 5,131,926*l.*; from which deduct amount of share capital not paid up, 439,843*l.*; leaving 4,692,083*l.* The amount of the share capital is 8,160,000*l.*, of which 7,720,157*l.* is actually paid up. Subscriptions to other lines, Wilts, Somerset, and Weymouth, amount to be paid up, 54,066*l.*; and estimated amount which the Great Western Company are bound to raise to complete the line, 1,000,000*l.*; South Wales, 187,472*l.*; Gloucester and Forest of Dean, 33,791*l.*; Plymouth and Great Western Docks, 2278*l.*; Stratford-upon-Avon Canal, 108,330*l.*; Birmingham and Oxford, and Birmingham, Wolverhampton, and Dudley, 2,666,384*l.*; Oxford and Rugby, 139,794*l.*; Windsor, 70,384*l.*; railways abandoned, 102,544*l.*; total subscriptions, 4,365,043*l.*; locomotive stock, estimate of working plant on 476 miles of new lines, at 2300*l.* per mile, 1,094,800*l.*; total liability, including debentures and loans, 10,151,927*l.* With regard to the annual traffic, it takes that on the 213¾ miles of the Great Western line and branches at 828,570*l.*, being the amount received in the year ending June, 1849; and that on the 491 miles of railway to be opened 1,339,448*l.*, making the total annual traffic, including 7200*l.* for tolls on the Stratford Canal, 2,175,218*l.*; and the annual expenditure at 1,369,537*l.*, including 910,560*l.* for working expenses (42 per cent.), 326,210*l.* guaranteed rents and interests; and renewal fund 132,767*l.* for stock and permanent way, leaving the net proceeds of annual traffic 805,681*l.*, deducting 562,194*l.* interest on debentures and loans, leaves 243,487*l.* applicable to dividend on 8,160,000*l.* share capital, or equal to 2*l.* 19s. 8d. per cent. per annum. Mr. Hutton concludes by stating—"To resume, in as few words as possible, the prospects of the Great Western Company, these calculations show that in estimating the future traffic of the company, upon the lines already opened, on the basis of the amount earned thereon during the past year, the traffic on the lines to be opened upon the basis of the actual Bristol and Exeter receipts, and on the other hand the working expenses at 42 per cent., the interest on the mortgage debt at 5 per cent., and on the interest of a new preference capital to be created at 6 per cent., there will remain to be divided a sum equal to 3 per cent. annually on the present stock. Keeping in view this statement, it will be a matter of no great difficulty to a proprietor to arrive at something like an approximation of the probable future condition of his property. Should he deem, under all the circumstances, that the estimates of future traffic used in these calculations are too little, or that the working expenses, of 42 per cent., are too high, then the dividend will exceed 3 per cent. On the other hand, should he consider the estimate of working expenses will be found permanently too low, and the future traffic on the new lines too high, then a less dividend than 3 per cent. will be the result. For the further assistance of the proprietors, I observe that, should the total traffic exceed the estimates here given by a proportion of 20 per cent., or one-fifth, then the dividend will be at the rate of a fraction more than 6 per cent. per annum, instead of 3 per cent.; on the contrary, should the traffic be found to be 20 per cent., or one-fifth less than the estimates, then there can be no dividend possible on the present share capital; the disposable balance from revenue would be barely sufficient to pay the preference charges for interest."

NEW KIND OF GUTTA PERCHA.—It is stated in a recent number of the *Amsterdam's Handelsblad*, that there is every reason to believe that at Palembang, in the eastern possessions of the Dutch, in the interior of the country, gutta-percha, or *getah pertja*, will be collected in great abundance. It would appear also that another substance has been discovered, called *getah-matah-buay*, which is also obtained in great abundance, by merely bleeding the trees; and which, although not susceptible of the same extended applications as gutta-percha, may, nevertheless, when mixed with this latter, prove of very great utility.

THE MUIRKIRK IRON COMPANY.—RETIREMENT OF JAMES EWING, ESQ., OF STRATHLEVEN.—The iron-works at Muirkirk, for the manufacture of pig and bar-iron, were the first erected in Ayrshire, and among the earliest in Scotland. During the long period of 40 years, Mr. Ewing has been the leading partner in the concern, although, for sometime back, he has not taken an active share in the management. Perhaps at no works did a better feeling exist between employers and employed than at Muirkirk, and where fewer of those strikes have occurred, which are so detrimental to both parties. This was in a great measure to be ascribed to the interest Mr. Ewing took in the welfare of the workmen, and to his encouragement of every scheme for their moral and intellectual improvement, which secured a fixed and superior class of men. When it was thought to be advantageous for the community to have a church in connection with the United Secession, it was chiefly by Mr. Ewing's exertions that one was erected; and again, at the disruption which rent the establishment in twain, and when a considerable number of the workmen, along with others, joined themselves to the Free Church, his influence obtained a temporary place of worship for them, and his liberal contributions assisted in building their present comfortable church. About 20 years ago he gave not only a handsome sum in money, but also a large donation in books, to set agoing a public library upon liberal and popular principles, and which is now a useful and flourishing institution, and accessible to all classes of the inhabitants. It may also be noticed, that it was by his fostering care and liberality that a Friendly Society was long maintained in connection with the works, which was of incalculable benefit to the workmen. The news of Mr. Ewing's retirement from the iron company, after so long and so agreeable a connection, was, it may be easily understood, heard with feelings of sincere regret at Muirkirk, where he was so well known and highly esteemed. He has, however, even in retiring, evinced his kindly feeling for the welfare of the people, and given, with his usual generosity, the following as a parting testimonial:—10*l.* to be laid out in books for the library; 10*l.* for a new school about to be commenced; and 10*l.* for the building fund of the Free Church.—*Ayr Observer.*

Original Correspondence.

IMPROVED MANAGEMENT OF IRON-WORKS.—No. III.

DESCRIPTION OF THE PROPOSED FIVE "WORKING COMPANIES."

1. COMPANY OF MINERS.—This company to embrace the getting of coal, ironstone, limestone, building-stone, fire-clay, and all other required minerals. The staff of operatives to be as follows:—

One manager (rank as first class), who to have (say) —*l.* per month draw from the "fund" of the company (which "fund" to have a Dr. and Cr. account for each member of the concern), and 15 shares of the annual net profits of the same.

One inspector (first class), to be appointed and paid by the ironmaster; but have 15 shares of the profits, unless ironmasters should object thereto.

Two (or more) *sub-managers* (second class), to have a draw of —*l.* per month from the fund of the company, and 10 shares of profits annually.

Four (or more) *overseers* (third class), —*l.* per month draw, and six shares of profits.

Sixteen (more or less) *first hands* (fourth class), to have a draw of more or less in amount, according to work and abilities (as the "working committee" of the company may determine), and 4 shares of the annual profits.

Sixteen (more or less) *second hands* (fifth class), a monthly draw of —*l.* and three shares of profits.

Sixteen (more or less) *third hands* (sixth class), a monthly draw of —*l.* and two shares of profits.

Sixteen (more or less) *apprentices*, (seventh class), a monthly draw of —*l.*, and one share of profits.

Extra hands, hired and paid, *ad lib.*, of the "working committee" of the company, which "committee" to consist of the following persons:—The *manager*, the *inspector*, all the *sub-managers*, the four senior *overseers*, and two or four *first hands*: these "first hands" to be appointed annually, by vote of all the first, second, and third hands; first hands to have three votes; second hands, two votes; and third hands, one vote each. These "working committees" to sit weekly, or oftener, if necessary, as circumstances may require, and make "rules and regulations" for managing and controlling all operations; and for regulating the wages, salaries, and conduct of individual members of the company also. All decisions of the committee to be by vote, thus—first-class members to have four votes; second-class, three votes; third-class, two votes; and fourth-class one vote.

Fines to be incurred for neglect of duties, or breach of "rules;" the said fines to go into a "*casualty* and *medical-aid fund*," which "fund" to be managed, appropriated, and controlled by a committee of 12 members or contributors, to be chosen annually by vote of all contributors. Medical men to be appointed in the same manner, and be paid specifically; the adoption of this equitable plan would, perhaps, be the means of inducing medical men to be a little more attentive and polite to their patients than is sometimes witnessed at iron-works. Each member, or contributor, to have votes as follows:—Seventh class, one vote; sixth class, two votes; fifth class, three votes; fourth class, four votes; third class, five votes; second class, six votes; and first class, seven votes each.

By properly systemising, and drawing into a focus, as it were, the medical departments of the large iron, coal, and copper-works of Monmouthshire and South Wales, a very great deal of good may be accomplished, as well for the advantage of those in the medical and surgical professions engaged about such works, as for those who may be necessitated to become their patients. The present contributions to the "doctors' fund," as it is usually termed at the works alluded to, amount in the aggregate to many thousands of pounds annually. This would, if thrown into ONE fund, maintain a *central hospital establishment* of the most efficient and splendid description, together with branch hospitals or surgeries, with duly qualified and competent attendants, at all the different works contributing to the central fund alluded to. At these establishments the patients should not only be properly physicked and manually operated upon, but be supplied with every sort of nourishment the physician, or the surgeon, may deem it necessary to recommend in their several cases. This would be no slight move towards effecting a cure, in hundreds of instances, about large iron-works; for, at such places, the "cook" is often a better, and a far more agreeable *restorer*, than the "doctor."

Each member of this, and all other working companies, to contribute to the "casualty and medical aid fund" 5d. in 1*l.* sterling (*i. e.*, a farthing in the shilling, or a 48th part), of all wages, salaries, and profits; and all extra or hired labour or talent to contribute in the same proportion, and have *votes* in a ratio with such contributions. The proprietors of iron, coal, and copper-works ought, in equity, to make handsome subscriptions to these funds, and also to funds for the maintenance of schools, and for the religious teaching of the numerous and mixed populations they of necessity draw around their several establishments. The "Consett Iron-works," near Newcastle (a description of which appeared in the *Mining Journal* of Saturday last), is an excellent example of the benefits to be derived at such works, to both the employer and the employed, by a just and judicious system of management.

Persons wishing to become "members" of these "working companies" (when new members may be required) must be recommended, as good and desirable hands, by at least two members of the fourth class, and on approval, after trial of their abilities, be entered as *apprentices*, or members of the seventh class, by vote of the working committee of the company. Promotions to be as hereinafter described:—Each member to conspicuously wear a *medal*, specifying the company, rank, or class, of the respective parties—thus giving to "airy nothing," as it were, a "local habitation and a name."

An "*insurance fund*" to be instituted (with branches at neighbouring iron, coal, or copper-works), for allowing certain sums weekly to persons meeting with accidents in the performance of their several duties, more or less, according to amount of premiums paid, the nature or extent of the accident, and the state of the fund (somewhat on the principles of "Odd Fellowship"); and also certain payments to relatives, &c., in cases of death. These insurances may be special—say for days, weeks, months, quarters, or years, *ad lib.*, of insurers; but every member of the several companies to regularly insure, more or less, according to rank and class, all the year round, exclusive of the special assurances above alluded to. As these "insurance funds" would be devoted exclusively to benevolent purposes, particularly in favour of colliers and miners, parties subject to numerous and, in a manner, unavoidable misfortunes, it is reasonable to conclude that the Government of the country would permit of their being instituted, and carried into effect, *free of duty*, on respectful and proper applications and representations being made for that purpose.

Fines to be incurred, by the several working companies, if the operations of any department of the general work are at any time impeded for the want of materials or labour, by neglect of duties, or want of proper forsight of the members of any particular company. These fines to go to the fund of the company injured; and in cases of dispute on these points, the ironmaster, or his local manager, to fairly decide as to the amount of fine.

All levels, pits, sheds, houses, engines, pumps, ropes, chains, roads, waggons, machinery, timber, tools, and other necessary plant, to be put in proper working order by the ironmaster; and the same (of which valuation inventories to be taken by duly-appointed parties) then to be kept in good order and repair by the working company, and so delivered to the proprietor, when any working contract be finally concluded. All necessary labour, hauling, tools, and materials, for duly prosecuting operations, to be found by the working company, including the consequences of every contingency and casualty whatsoever, except things or circumstances that may, in these contracts, be specially exempt from such conditions.

All iron, lime, timber, bricks, and other required things, to be supplied to these working companies at *cost price*; and all old, broken, or surplus materials to be taken in exchange by other working companies, or the ironmaster, at a fair valuation, as the committees of the several working companies may determine. Weighing machines for raw materials, or finished results, and general roads, ponds, air and water-courses, to be provided and kept in proper condition by the proprietors of the work, and machine men, road repairers, &c.

All rents, rates, tythes, taxes, and royalties to be paid by ironmaster, and all necessary extensions also; but tenants (*i. e.*, the working companies) to keep all things in due order and repair. There to be just allowances made for all *depreciations* or *improvements* in the value of plants, &c., at the final end of contracts; and all points of dispute between working companies to be finally settled by the proprietor, or his general manager of the works; but all differences between a working company and the ironmaster, or his general manager, to be settled by arbitration of three persons, to be thus chosen—one to be named by the ironmaster or his general manager, and one by the committee of the working company in dispute, and the third person, or umpire (should it be necessary to appoint

one), to be chosen by lot, out of four persons, two to be named by the ironmaster, or his general manager, and two by the committee of the working company in difference; from the decisions of these three persons there to be no appeal.—S. B. ROGERS: *Nantyglo, Sept.* 17.

[*To be continued in next week's Journal.*]

ON THE GENERAL SYSTEM OF ATMOSPHERIC TRACTION.

REPLY TO MR. JOHN CURR, "JUSTITIA," "AN OLD CONDENSER," AND MR. G. WILLIAMS'

SIR,—There cannot be a question but that open, fair, and dispassionate argument is the great highroad that leads us on to truth. I am, therefore, gratified to find, in last week's Number of the *Mining Journal*, that no less than four of your correspondents have honoured my letter upon "Atmospheric Traction" with an elaborate critical examination. To the various remarks of these gentlemen, I will now endeavour to reply; and falling, first of all, into the wake of Mr. John Curr, whose communication I perceive stands foremost on the list, I will proceed to test the validity of his several positions, and ascertain their compatibility with acknowledged facts. Mr. Curr, having rightly summed up the loss of power by atmospheric leakage, according to the data which I furnished as being nearly equal to 23 horses, proceeds to say, that "the engine power not being given, nor the weight and speed of the train, nor the gradient (if any), little useful information is derivable therefrom." I now beg to say, that the power of the engine was *rated* as equal to 100 horses; the gradient on which the experiments were made was 1 in 115; and the experiments themselves, as to weight and velocity, were tried under such varied circumstances, and the particulars are recorded in every instance with such accuracy and precision, that it would be difficult to give a comprehensive view of their relative value in this respect, without copying the tabulated results of Mr. Stephenson, which are far too elaborate for transcript upon such an occasion as this. A reference to my last communication will show that, in estimating the general effects of leakage, I have assumed that the train is travelling at an average velocity of 30 miles an hour. We know that the piston can never be perfectly air-tight, according to its present construction. Even when it is in a state of rest, a slight sound gives unerring indication of the entrance of the enemy; and when that state of rest is changed to one of swift motion, the want of perfect elasticity in the periphery of the piston very naturally tends to increase the evil. Piatti's method of packing will be allowed, perhaps, to be a step in advance over the old system.

Your correspondent says, in connection with this part of the subject, that "the greater the pressure upon the piston per square inch, the more will be the leakage." Truly so; but not in the ratio in which he has rendered it, and very far from it, as another glance will at once convince him. The introduction of a non-elastic fluid, such as water, is quite a new point in the argument altogether; but I presume it is merely brought forward for the sake of comparison. I am quite aware that, *at first sight*, a great loss appears to be incurred by the use of compressed air, because of its elasticity, and of the seeming necessity for commencing the process of condensation at the zero of active pressure—a proceeding the very inverse of that which causes so great a practical saving in the use of expansive steam. But the loss from this source becomes considerably reduced if, after the condensed air has fulfilled its office, the contents of the tube are pumped back into the reservoir. This mode of economising power has always been contemplated by the patentees.

Now, with regard to "the saving point," Mr. Curr says, and very rightly, that I have advised the use of Cornish engines; but he says further, that "between pumping water and air there is no parallel." I really must contend that, in as far as the possibility is concerned of effecting either operation by the same means, there is a decided parallel. The operation of a variable power upon a variable load is one which is naturally disposed to inequalities of action, and more especially so when the periods of greatest intensity in the development of the antagonistic forces do not coincide, but are inverted. Such inequalities, however, are quite within the reach of mechanical skill and engineering practice. They have been overcome—have been equalised—and under those very circumstances where equalisation appears to be deemed impossible.

In my last letter upon this subject, dated Sept. 6th, I quoted a passage from the *Railway Times* for 1843, p. 1298. To the facts which it so plainly sets forth, I must again solicit the favour of attention, and not merely so on the part of Mr. Curr, but also on that of Mr. G. Williams, who points to the same objection, and says I have not succeded in meeting it. I certainly thought that I had done so, but I will endeavour now to be still more explicit. A steam-engine is employed to work an air-pump (this is at Dalkey). The steam enters the cylinder at a pressure of 40 lbs. to the inch; the opposing pressure in the air-pump is 2½ lbs. (I take the minimum occurring in practice). At the end of the stroke the pressure of steam is 10 lbs. at the very utmost; while the atmospheric resistance is 15 lbs.—so that the pressure per square inch at the commencement of the stroke is upwards of *seventeen times greater* in the steam cylinder than in the air-pump, and at the end of the stroke it is absolutely *one-third less* than the pressure in the pump. And as for the load upon the engine increasing as the compression proceeds, the subversive bearing of such a fact upon the system we are now discussing, is clearly and practically negatived by the report to which I have this moment referred.

I stated the average consumption of a good condensing steam-engine, of ordinary make, to be equal to about 5 lbs. of coal per horse power per hour, and I still think the estimate a fair one. Mr. Wicksteed's authority was not quoted by me *upon this point*, but simply upon the consumption of the Cornish engine, and Mr. Curr has evidently taken the minimum given in my statement, and used it as the average employed by Mr. Wicksteed. Hence the discrepancy, which is no fault of mine. Mr. Curr points to the priming of the boiler as the great evil of the locomotive; but he does not speak of the terrible loss of power involved by the use of the blast, particularly at high velocities, nor of the constructive errors upon which that loss depends. I heartily agree with this gentleman's concluding remark, that although railway "shareholders are grumbling so loud as to be heard at the four cardinal points of the island, they remain as obstinately deaf to reason as to their own interests." I will now turn for a moment to "Justitia."

He seems to think that the failure upon the South Devon Railway was, in no way, due to any defect in the construction of the engines, in proof whereof he alludes to the fact, that they were of "first-rate workmanship." This is all very correct, but *first-rate workmanship* does not necessarily imply *first-rate principle*, and here first-rate principle was certainly wanting, as far as economy was concerned, for after a liberal allowance of the company's capital had been converted into waste steam, the glaring evil was recognised, and active measures were taken to remedy it. In page 19 of the chairman's address we find the following sentence:—"*The expansion gear has been applied to one engine only, and there with great advantage.*" I could offer several other corroborative quotations, but I think I have stated quite enough. If engines are really *first-rate* in *principle* as well as in *workmanship*, they do not need any after *improvements*. The true relation of the extravagant engines and the faulty valve to the abandonment of the atmospheric on the South Devon Railway appears to me tolerably clear, and I endeavoured so to express it. We all know that the last straw will break the camel's back, and we are sure that a heavy bale of merchandise will do it even more effectually—so, therefore, though these engines were originally well made, still as they had not incorporated in their construction those known arrangements for ensuring the maximum of practical economy, which were in use elsewhere, not merely in Cornwall, nor even at the East London Water-Works, but also in a modified form upon the Dublin and Kingstown Atmospheric Railway, the needless expenditure of fuel to which they directly gave rise, aggravated the loss resulting from valvular leakage, confused and dismayed the proprietary, and brought the undertaking to a hurried close.

The only remark in my letter which bore in any way upon Messrs Fell's system was that, under any such an arrangement as they have adopted, the tractive power still depends upon adhesion, and implies, to a certain extent, the existing evils of the locomotive—viz.: the carriage of a pondrous and unlucrative weight with every train, together with additional expense in the maintenance of roadway. As this statement has not been, and cannot be, controverted, I have no more to say upon the subject, except it be to inform "Justitia" that, without attempting to dispute the accuracy of his statements, it is, nevertheless, impossible for me, with no better information than may be obtained from a hasty glance at the subject, to acquiesce in the general merits of this invention, as summed up by him at the termination of his letter.

A word or two now to the "Old Condenser." Our friend begins by saying that there are some of my conclusions which, if submitted to scientific scrutiny, could be as easily refuted as he thinks they have been inconsiderately advanced. "Condenser," then, leaves me in the dark as to what these conclusions are, so that I really cannot say whether he is right or wrong. He is evidently a strong advocate of the vacuum principle, and so, too, is Mr. Williams. I shall, therefore, feel obliged to the latter gentleman if he will consider what follows as a joint reply to both letters. I have read them attentively, and I must say that your correspondents have altogether failed to convince me of the superior efficacy and economy of working by a vacuum.

The matter, therefore, still remains a disputed question between us. *But supposing that good and solid reason can be shown for preferring exhaustion to condensation*, then I can only acknowledge, *as I did in the very outset*, that it is quite out of my power to suggest any objection to Messrs. Clarke and Varley's metallic spring valve. And with respect to the system adopted by Messrs. Carter and Cunningham (and which it will, perhaps be remembered was also referred to favourably in my original communication upon this subject), assuming the economy of construction, and the absence of all injurious concussion at high velocities to be demonstrated, there appears to me but one remaining difficulty to encounter, and it is that contained in the terminal conclusion of Mr. Stephenson's report—viz., "That on long lines of railway the requisites of a large traffic cannot be attained by so inflexible a system as the atmospheric (vacuum), in which the efficient operation of the whole depends so completely upon the perfect performance of each individual section of the machinery."

London, Sept. 20. ISHAM BAGGS.

STEAM ON TURNPIKE ROADS.

RESPECTED FRIEND,—Your correspondent, "Civil Engineer," says that I have not answered his question *(I will now try to satisfy him)*, "but rather seems to treat the idea of stone tracks as an unstable and extravagant plan;" and then adds—"I think, however, before I have travelled far in the discussion with Mr. Motley, he will find that I shall prove the stone tracks far more economical, and infinitely more stable, than any timber tracks he can produce;" and then he goes on to state, that experiments has proved that timber, for paving purposes, is both "*indurable and impracticable.*" I do not understand what he means by *indurable*, but I presume he means unendurable, but he is certainly mistaken in saying it is *impracticable*; but I have never said one word for or against stone tracks. Your correspondent seems to have confounded one thing for another, by endeavouring to make it appear that I meant my remark of "unstable and extravagant" to apply to stone tracks, whereas I meant it to apply to the plan of a floating platform of 15 or 26 ft. wide, which he suggested, as his opinion, the best mode for crossing bog land. Now, let us see what would be the expense of his proposed platform. Assuming it to be (say) 18 ft. wide, made with 2-in. planks, resting upon four longitudinal bearings, this would require about 5 cubic feet in every lineal foot, or 15 ft. every yard run, which, at 2s. per foot, would be 30s. per yard. Now, the plan I propose (which is patented), is to drive piles (say) 12 by 6 in., of such lengths as the nature of the ground may require. Suppose the depth of the bog to be from 6 to 8 ft. to the sub-stratum of clay, gravel, or other hard material, then piles of 10 to 15 ft. would be sufficient. I propose to drive two piles crossways—viz.: the flat sides crossway to the longitudinal line every 12 ft., assuming them to be 12 ft. long, they would contain 6 cubic feet each. I then propose to cut a notch in the head of the pile about 10 in. deep and 3 in. wide, so as to form a chair for the longitudinal beam, or bearer, therein to insert two planks 6 by 3 in., so fixing them one upon the other as to break the joints, thereby form a continuous beam, or bearer, 12 by 3, or of greater dimensions if required—the whole to be connected by a bolt of iron passing transversely through the heads of each pile, thus firmly securing the beams and piles together; and between each set of piles—viz.: 6 ft. from each—I propose to connect the beam, or bearer, by a cross-tie of proper substance, dovetailed between the two timbers (6 × 3), forming the beam. On the top of the beam I propose to affix an iron plate, or bar, slightly convexed—say 2½ by ½, ⅝, or ¾ in., as the case may be deemed to require, secured to the beam by means of screw-bolts and nuts, or screw-bolts only, 10 to 12 in. long, by which means the two planks would become as firm as a solid plank of 12 by 3 in. The two piles would contain 12 cubic feet; the bearers, 12 ft. long, would contain 6 ft.; together, 18 ft. for every 4 yards, or 4½ ft. every yard run, which, at 2s. per foot, would be 9s. per yard instead of 30s. per yard, the cost of platform, besides possessing a much greater degree of firmness and stability; but in crossing ordinary agricultural lands, an average length of piles of 6 ft. would be ample, which would reduce the cost to about 6s. per yard run; of course this is exclusive of iron, which I omit, imagining that expense to be the same in both cases. Now, I will proceed to notice "Engineer's" remarks upon stone tracks. I have inquired of two of the most eminent stone merchants in London—viz.: Messrs. Johnson and Messrs. Freeman—and I find the lowest price of granite, of the required dimensions, quarry dressed, would be, in their yards, at least 3s. per cubic foot; and if the upper surface be moderately dressed, and the ends properly jointed, would increase the expense to about 4s. 6d. per cubic foot! But "Engineer" says it can be obtained at the quarry, including dressing, &c., at 10d. *per cubic foot.* Verily, if this be true, the stone trade must be a very profitable one; but at whatever price it may be obtained at the quarry, it is clear it cannot be obtained in London at less than 4s. per foot; assuming which, let us see what would be the cost of a granite track of the dimensions mentioned—viz.: 18 in. wide, 12 in. thick. This would be 9 cubic feet for every yard run, which, at 4s., would be 36s. per yard; add 6d. per foot for laying down, would make the total cost full 40s. per yard. A triangle timber track, 18 in. wide and 9 in. deep in the middle, would contain about 1½ cubic foot in every lineal foot; or 4½ ft. every yard, at 2s. per foot, would be 9s. per yard run, and add 6d. per foot for laying down, would make the total cost of timber tracks 11s. 3d. per yard, or little more than one-fourth the cost of granite! I admit the granite would be much more durable, but inferior as respects noise, smoothness, and ease of motion; but let it be supposed that the timber track shall be made of greater substance, so as to be one-third the price of granite; then imagine a line of timber tracks of 12 miles to cost 12,000*l.*, and the stone tracks 36,000*l.*, the interest and compound interest of the 24,000*l.* excess would renew the timber track every six or seven years; an annual reserved fund of 1000*l.* would keep it for ever. As to "Engineer's" objection to Baltic timber, as being liable to split into matches, is he not aware that there is other timber that has not that tendency, such as elm, beech, &c., which, I believe, may be obtained at even a cheaper rate than Baltic or American deal, timber of a much more endurable nature, at least, as regards friction?

With respect to his estimate of stone tracks, it forcibly reminds me of the eminent engineer of the Bristol and Bath Railway, who, in his examination before the Parliamentary Committee, was asked his estimate of that part of the Great Western Railway. He replied about 206,000*l.*, which included purchase of land, making and completing the line, stations, locomotive power, &c.; and being asked his estimate of the cost of a tunnel *through pennant rock* (dimensions, I believe, 30 by 30 ft.), he answered 17*l.* per yard run; whereas, I believe, it cost much nearer 70*l.* per yard; and this favourable estimate (for about 12 miles) of 206,000*l.* has ended in a cost exceeding 800,000*l.*; and his original estimate of the whole line to London of 2,500,000*l.*, has ended in a cost of between 8,000,000*l.* and 9,000,000*l.*; and yet the confiding shareholders voted, or subscribed and presented, large sums of money to the eminent and talented engineer and secretary, who were the principal managers of that splendid, though unprofitable, monument of human ingenuity, which, in my opinion, has cost millions more than circumstances warranted, and will, I have no doubt, end most disasterously for the original shareholders.

In one thing, however, "Engineer" seems to agree with me—viz., that by adopting a track, steam on common roads is certain to be successful. With respect to his idea of employing sand as an antidote against slipping, the same will apply still more forcibly for timber; and as Squire's steam-carriage, with two driving-wheels, went up Highgate Hill at the rate of six miles per hour, surely our carriage, with four driving-wheels, would ascend it with equal ease; indeed, we fear no hill with a gradient of 1 in 8, which is from two to three times greater than the undulations on most turnpike roads. I will now take leave of "Civil Engineer," by quoting from my printed address to the shareholders of the Bristol and Exeter Railway, published about 10 years ago. Alluding to the probable excess of expenditure that would certainly be incurred, unless greater economy was adopted, I stated, "How far this may be met by the much-approved expedients of half shares, quarter shares, and some money borrowed, is hard to say; but when the pressure of such extraordinary demands becomes fully known, will come a crisis, when, perhaps, even the directors, deaf as they now are, may have their hearing sufficiently improved to catch the voice of complaint, which I have been given to understand, relying on the talent they so amply pay, their present feeling is utterly to disregard. The public (I should say a portion of the public) will be warned against hereafter awarding the laurel of victory before the fight is won, celebrating, as they have done, for works commenced, but not yet finished, and future companies and engineers, having had the path trodden before them, may also take warning, happy as he who, warned by other's ills, may say from his own experience—"*Felix, quem faciunt, aliena pericula cautum.*"—THOMAS MOTLEY: *Stangate, Lambeth*, 9 mo., 17.

THE NEW ROTARY ENGINE.

SIR,—I perceive, in your last week's Journal, an account of an experiment made at Taplow with an engine, which you attribute to the Hon. Capt. Fitzmaurice. I am sure, from your love of fair play, you will allow me to state, that the invention was patented by me on the 14th December, 1846, and is described as mine in an account of it in your journal of a subsequent date. It is avowedly worked under my patent by Captain Fitzmaurice (who holds a share), and I am willing to believe the error is not attributable to any wilful mis-statement on the part of that gentleman. I am not answerable for the details of the experiment referred to, and it is probable that credit is due to Capt. Fitzmaurice, or those interested with him, for having perfected some of the parts of the machine. I feel it, however, the more necessary to put myself right in the early stage of the proceedings, having, from former supineness, in some measure, lost the credit of a prior invention, which has proved of great general utility. I allude to the well-known feathering paddle, known as "Morgan's wheel," which, notwithstanding it was my sole invention, has become associated with Morgan's name, from his having become wholly (as Capt. Fitzmaurice has become in part) the purchaser of my patent. I am further induced, on public grounds, to make this claim, as I perceive a growing practice among the assignees of patents to give the inventions their own names, which appears to me just as reasonable as if we only knew Bolton in the condensing engine, or the publishers, Murray and Constable, in the works of Byron and Scott.—ELIJAH GALLOWAY, C.E.: *London, Sept.* 18.

VENTILATION OF COLLIERIES.

SIR,—At a very numerous meeting of the miners of Northumberland and Durham, held on Saturday last, at the Black Fall, near this town—[see notice in another column]—among other business connected with their trade, the subject of ventilation of mines formed a prominent part; the following resolution and protest being carried with perfect unanimity:—

Resolved,—"That the immense sacrifice of human life in the pits and collieries of this country calls aloud for legislative interference in providing some remedial measure. That in the opinion of this meeting the providing of an efficient system of inspection of mines (such inspectors being practical men), would go far to prevent this fearful destruction of life; but to insure that to the greatest possible extent, such inspectors should be empowered by Act of Parliament to enforce a healthy and safe ventilation of mines, by compelling the use of brattices, doors, stoppings, and proper air-ways, and that we resolve to petition Parliament early next session to pass an Act embodying these views and opinions.

"That this meeting having learned that arrangements have been made, at a meeting of viewers and Professor Phillips, that only a few collieries be inspected in this district, as affording a true index of the state of the ventilation of the whole number of colliers in the two counties, hereby resolve to enter their sincere and earnest protest against such proceedings, and trust that, for the honour of the commissioner, he will not persist in making to the Government any report calculated to leave the impression that the state of the ventilation of the whole of the collieries is in accordance with the few which he has inspected, inasmuch as such an impression would be a gross imposition, and tend to frustrate the benevolent and humane object of providing by Act of Parliament some efficient and remedial measure for such frequent and disastrous accidents, which occur in the mines of this district."

Mr. Wyld, M.P., being present for the express purpose of ascertaining the feelings of the miners upon the question of ventilation, was loudly called upon to address the meeting on that subject, which he did with most happy effect, concluding an able speech with a solemn appeal to the miners to persevere in their honest efforts to free themselves, as much as possible, from these direful events, by putting their case clearly before the Legislature and the country, and claim a like protection as is accorded to other classes of the community.—M. J.: *Newcastle-on-Tyne, Sept.* 19.

DETECTION OF FOUL AIR IN COAL MINES.

SIR,—I beg again to call the attention of your readers to the use of the barometer for the protection of the poor colliers, as it certainly appears to me that it is to this valuable instrument, with the application of electricity, we must now turn our attention. Before proceeding further, however, I may refer to a portion of Mr. Binney's observations which appeared in my last letter, where that gentleman states:—"*By examining the times of the occurrences of the accidents, with a record of the changes of the barometer, many of the former will be found to have taken place when that instrument has marked the lowest pressure of the atmosphere, and more especially on the sudden fall after it had stood high for a considerable time.*" Now, Sir, if we look seriously into this matter, we shall at once observe that too great attention cannot possibly be paid to these atmospheric changes, "and more especially to the falling of the mercury." For illustration, we will suppose, the day before an explosion takes place, the mercury in the barometer to indicate 30 in., or 15 lbs. pressure: the day of the explosion it indicates 28·50 in., or 14·25 lbs.—the difference would be 1·50 inches, or ·75 lbs. less than the day before: and that the barometer had stood at 30 in. for some weeks previous. It is obvious that the pressure in every pore and fissure in the earth, to a certain extent, would be of the same density as the surrounding atmosphere. In case a sudden fall in the mercury takes place, as described, which can only be regarded as a sudden withdrawal of a portion of the external pressure from the surface of each pore, then, as a matter of course, the gas must be forced out from every part into the mine, until internal pressure corresponds with the external; or, in other words, until the equilibrium between the two forces becomes restored. The quantity of carburetted hydrogen gas, generated into the workings under such circumstances, must be great indeed, and should any mine happen, at these great barometrical changes, to be in a bad state of ventilation, each person there employed must be in extreme danger. If such is not the case, in what other way are we to account for the explosions occurring when the barometer indicates low pressure? Whether the cause of these explosions has been attributed to the above source or not, I am not aware, but I certainly shall regard them in this light, until I am convinced otherwise. Then, it is evident, by strict observance of the barometer, that these disastrous accidents may be, to a great extent, avoided. Perhaps some of your correspondents would be kind enough to furnish me, through your columns, with the thermometric indications at the time of the explosions, in a tabular form, as tending greatly to elucidate the subject under discussion.—G. SHEPHERD, C.E.: *Fleet-street, Sept.* 16.

COPPER SHEATHING.

SIR,—In a former communication, I informed you that the Elbe Copper-Works had received a certificate from the Prussian Government that their cake copper was superior to the English for the purposes of sheathing. The ores used at these works are sulphurets of a high per centage from Chili and other parts of the South American continent. They are seldom or ever calcined; but simply run down to a rich regulus in the ore furnace. The slags coming from them do not average more than one-quarter per cent. They are not ground, or in any way pulverised; but introduced in the furnace in large lumps. There is no doubt it would improve them if run through a crushing machine; but the proprietors not having found any difficulty in reducing them in a rough state, have not considered it necessary to construct a grinder. The regulus is taken to the metal furnace, and calcined there for about six hours, previously to being run down; it is then carried through the ulterior processes, the same as pursued at Swansea. At the Alten Copper-Works, the Kaafjord ores, which are sulphurets in a quartzose and calcareous matrix, are calcined in the open air, and then reduced in the ore furnace. The produce of the regulus is about 35 per cent.; this is then calcined, and mixed in proportions with the carbonates of Raipas, when they are smelted together, and reduced in the metal furnace. This generally produces purple metal, which, after one roasting, is fit for the refinery. The copper produced from these works is generally that termed "best selected." At the Roraas Copper-Works, the ores are calcined in the open air in parcels of from 80 to 100 tons each. The ore is then run down in a blast-furnace; after which the regulus is calcined in the open air seven times; it is then taken to another blast-furnace, and converted into gahr copper, according to the German process. I shall not trespass on your space by describing this, as the manipulation was so lately given in your "Notices to Correspondents." The roseate copper is transported from Roraas to Leirfos, in the neighbourhood of Drontheim, where it is refined in a reverberatory furnace and rolled. *Charcoal* is the fuel used at Roraas—coal being only

used in the last operation. Whether the use of charcoal can have any influence on the copper, so as to render it of superior quality, will leave for those better acquainted with chemistry than myself to determine.
Fleet-street, Sept. 19. GERMANICUS.

THE ORIGIN OF WIRE-ROPE.

SIR,—I have, with much pleasure, perused an article on wire-rope, in the *Mining Almanack*. The origin of matter of this description is too frequently buried in oblivion for want of some record; and, I think, it is my duty to say, that the writer is not far out in the historical description and circumstance of the origin of this new and important manufacture. In the year 1827, or 1828, I had the pleasure of knowing Mr. Andrew Smith, who had then a patent for metallic shutters, and, I believe, the first set of which was applied to the shop-window of the late Mr. Westwood, Princes-street, Leicester-square. At the time alluded to, I was Mr. Westwood's foreman, and Mr. Smith fitted to his shop-window a set of shutters made of steel, which are still in their place. The shutters were first suspended with cat-gut, which soon gave way, in consequence, as Mr. Smith asserted, of the rats eating it; and he then, I believe, for the first time, made the experiment of trying wire-rope; this rope went on very well for some time as a substitute for cat-gut; and, in the course of seven years, I know that Mr. Smith made several expensive experiments on the properties of wire-rope, and then took out his first patent, since which, I believe, he has had five others for different modes of manufacture; and his last patent machinery (which I have seen) I consider to be a very clever invention.—JOHN WALKER: *September* 17.

New Patents.

[From the *Mechanics' Magazine* of this day.]

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

Specification of patent granted to Mr. C. W. Siemens, Birmingham, engineer, for certain improvements in engines to be worked by steam and other fluids, and in evaporating liquids.—The first of these improvements is in a method of allowing the greater portion of the exhaust steam to escape into the atmosphere by an escape valve; the remainder is employed to heat the water of condensation for feeding the boiler; the invention being in these respects similar in principle to Urwin's engine, described in the *Mechanics' Magazine*, Nos. 1353, 1354, 1356. A second improvement is in a condenser, which formed the subject of a former patent of the patentee. The chief claims in respect of both improvements have reference to the means employed for reducing the quantity of water required for condensation, and the recovering of the heat carried off by the waste steam. A third improvement relates to the construction of evaporating pans; the object aimed at is the recovery and re-employment of the heat of the steam used for producing the evaporation.—*Claim:* The evaporating apparatus described.

Specification of patent granted to Mr. A. Shanks, Robert-street, Adelphi, engineer, for an improved mode of giving form to certain metals when in a fluid or molten state.—The improved mode which forms the subject matter of this patent consists in casting pipes, cylinders, and spherical vessels without using cores during the process of casting. For this purpose a metal mould of the pipe or cylinder is put upon a machine consisting of several drums or pulleys, upon which the mould rests. When the molten metal is to be poured into the mould the drums are set in motion by some moving power, which causes the mould to revolve steadily upon its axis; the molten metal is thus made to adhere by centrifugal force to the sides of the mould, which is kept in a state of motion till the metal becomes cold or set. When the hollow vessel is of a spherical form, the mould is set upon the top of an upright spindle, which is kept revolving while the metal is being poured in, and until it sets, as in the former case.
Claim.—The mode of forming pipes and cylinders by means of centrifugal force, and without the aid of cores.

Specification of patent granted to Mr. G. F. Wilson, Belmont, Vauxhall, for improvements in the manufacture of candles and night-lights.—These improvements relate to the purification of vegetable tallow and paraphine, and to their employment in the manufacture of candles with double wicks. The vegetable tallow, or paraphine, is first put into a vessel with about 8 per cent. of sulphuric acid, 1·8 sp. gr.; it is afterwards distilled; but, in order that it may be kept from coming in contact with the atmospheric air, the distillation is effected by the introduction of steam in numerous jets at the bottom of the vessel.—No claims.

Specification of patent granted to Mr. P. A. Fontainemoreau, South-street, Finsbury, for certain improvements in coating or covering metallic and non-metallic bodies.—The patentee specifies a great number of new solutions of metals, which may be employed in coating other metals by the aid of the galvanic battery. We select some of the more remarkable:—
For Gilding.—Take 1 part chloride of gold, and precipitate with a soap made of gayac pitch; then dissolve the precipitate in 100 parts of hot water, into which there has been put 10 parts of caustic potash, or its equivalent of caustic soda.
Another for Gilding.—Take 1 part oxide or chloride of gold; dissolve in 200 parts of hot water with 20 parts of caustic potash, or its equivalent of caustic potash, to which add 15 parts of sulphate of potash or soda, for the purpose of rendering the fluid more capable of conducting the galvanic current.
For Platinizing.—Use a solution of bi-chromate of platinum and potassium.
For Silvering.—Use a solution of the carbonate of silver and the carbonate of ammonia.

Specification of patent granted to Mr. A. Bragg, Queen's-row, Pentonville, bath-keeper, for improvements in propelling by atmospheric pressure.—The object of these improvements is the same which has occupied the attention of so many inventors—viz.: to get rid of the slit in the atmospheric main. The arrangements adopted for this purpose by the patentee consist in having sets of cylinders laid between the rails, and parallel thereto, each cylinder being fitted with a piston, the rod of which passes through stuffing-boxes in the ends of the cylinder, and is connected outside to a longitudinal bar, notched or toothed upon its upper edge. The cylinders placed between the rails are connected by short pipes to the main exhaust pipe, which is laid outside of the rails. The propelling carriage, in coming over the positions of the respective cylinders, becomes partially connected to the notched bars by means of a paul which falls into one or other of the notches; and the movement of the piston is effected at the same instant (by the communication being opened up between the cylinder and the air exhaust pipe), which causes the carriage to be propelled so much in advance, by which it comes in contact with the notched bar connected with the next cylinder, where it receives another push forward, and so on continuously, until the pauls are lifted up from coming in contact with the notched bar.
Claim.—The above mode of propelling by atmospheric pressure, and especially the notched bar attached to the piston rods.

Specification of patent granted to Mr. T. H. Russell, Wednesbury, patent tube manufacturer; and J. S. Woolrich, Birmingham, chemist, for improvements in coating iron and certain other metals, and alloys of metals.—These improvements consist—firstly, in coating iron by the metal cadmium, either with the aid of electricity, galvanism, or the magneto-electric machine, or by immersion in a hot both of the metal. When the coating is to be effected by means of the galvanic trough, a precipitate of cadmium is first formed, which is then dissolved in a solution of the cyanate of potass. The articles to be coated are immersed in the solution, and treated in the usual manner practised in coating metals by the aid of the galvanic battery. The positive wire should terminate in a plate of cadmium, and that should surround, or be placed a few inches from surfaces to be coated. When the articles are to be coated by immersion in the molten metal, then a portion of tin is to be added to the cadmium. The articles are cleaned by dipping in dilute acid, and then plunged into the melted metal, being kept in which for some time the surfaces will become coated. The surface of the melted metal is kept covered with oil or tallow, to prevent the action of the oxygen of the atmosphere upon it. Articles made of iron may be protected by being partially covered with cadmium, such as screw-propellers, &c. The patentees describe, secondly, certain methods of coating metals with copper by the aid of the soluble acetates, benzoates, and cyanates of potassa.
Claims.—1. The coating of metals, or alloy of metals, with cadmium, or alloys of cadmium, and the partially covering of articles to be protected with cadmium.—2. The coating of metals with copper, or alloys of copper, by means of the soluble acetates, benzoates, and cyanates of potassa.

Specification of patent granted to Mr. S. Hall, King's Arms-yard, Coleman-street C.E., for improvements in apparatus for effecting the combustion of fuel and consuming smoke, and for preventing explosions of steam-boilers, and other accidents, to which they are liable. In this new apparatus, or furnace, of Mr. Hall, the bars are inclined from the horizontal line towards the back of the furnace; they are acted upon by revolving eccentrics, to which they are attached, so as to have an alternating motion from front to back of the furnace; at front the top of the furnace is covered with a boiler protector (a water heater); at the further end of the furnace, there is a trap-door, formed of fire-brick, upon which the scoria from off the bars collects, and which is acted upon by a hand lever, so that the unburnt materials upon it may fall into the ash-pit. The steam-boiler is provided with a pipe, leading from the safety-valve to the furnace, so that, in the event of steam blowing off at the valve, it is conveyed into the furnace, and damps the fire. The specification next describes a feeding apparatus for supplying water to the boiler, which consists of a chamber, which is alternately filled and emptied into the boiler by means of two cocks—the one leading from a supply pipe into the chamber, the other leading from the chamber into the cistern. The cocks are opened and closed by means of wheel gear attached to them; the speed of the wheels is regulated by the float, which is made to act upon a band running over two cones, which causes the wheels to turn quicker or slower, according to its position on the cones. The last improvement described consists in having wheel gearing attached to the safety-valve, which causes it to keep constantly turning round on its seat, and thereby prevents the risk of its becoming locked.

Specification of patent granted to Mr. G. Knox, Moorgate-street, London, secretary to the Shrewsbury and Birmingham Railway Company, for improvements in railway carriages.—1. Mr. Knox's improvements consist, first, in the construction of a buffer-truck or carriage, which consists of three distinct pieces or carriage bodies, placed some distance apart from each other, and affixed to a frame, the side rails of which are capable of being slid the one over the other, like a telescope tube. Buffers, composed of rings of vulcanised India rubber and metal plates placed upon a sliding-rod, are interposed between the pieces of the carriage; breaks are placed between the wheels on each side, and are connected by springs, so that when the frame of the carriage shortens, the breaks begin to act upon the wheels.—2. A buffer is last described, composed of flat springs, attached to a malleable iron cylinder, which slides within another box or chamber; also a modification of this buffer, composed of malleable iron cylinders, with helical springs placed inside.—3. A draw-bar and hook, with a helical spring superimposed between the head of the draw-bar and the carriage.—4. Mr. Knox claims, lastly, making the internal surface of the naves of railway carriage wheels to terminate in a bell-shape, by which the risk of breakages to the axle at that part is lessened.—5. A ventilator for railway carriages, which is composed of two slotted plates—the one slides over the surface of the other, so that the openings may be made greater or less at pleasure.—6. An improved coupling screw for railway carriages. There are three arms to the screw, and these are made of sufficient length to enable the screw to be turned without going between the carriages.—7. A mode of connecting the different parts of the framing of railway waggons together without mortices. The joinings are effected by means of metal plates and sockets.
Claims.—1. The buffing carriage, as described,—2. The improved buffers.—3. The elastic draw bar.—4. The making the interior of the naves of railway wheels of a bell-shape.—5. The ventilator for railway carriages.—6. The improved coupling screw. And 7. The mode of joining the frames of railway trucks without mortices.

Specification of patent granted to Mr. F. H. Thomson, M.D., Hope-street, Glasgow, for an improvement or improvements in smelting copper and other ores.—The patentee has disclaimed the words "and other," and confined his patent to the smelting of copper ores alone. The improvement therein consists in the application of whinstone iron slag, or other similar matters, consisting chiefly of silex, as a flux to be employed in the reduction of the ores, whether in the form of sulphurets, carbonates, or oxides. A good flux is stated to be obtained by using, with 1 ton of the calcined copper ore, 4 cwts. of broken whinstone and 70 lbs. of pounded coke; if barilla be added, a smaller quantity of the whinstone will suffice.
Claim.—The employment of whinstone or iron slag, as a flux for copper ores.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

C. Marsden, Kingsland-road, for improvements in traps to be applied to closets, drains sewers, and cesspools.
W. E. Newton, Chancery-lane, civil-engineer, for certain improvements in pumps, and in machinery or apparatus for working the same, which latter improvements are also applicable for working other machinery. (Being a communication.)
W. Handley, Chilwell-street, Finsbury, confectioner; G. Duncan, Battersea, engineer; and Alexander McGlashan, Long Acre, engineer, for improvements in the construction of railway breaks.
H. Bessemer, Baxter-house, Old St. Pancras-road, engineer, for improvements in the preparation of fuel, and in apparatus for supplying the same to furnaces.
E. Galloway, Southampton-buildings, Chancery-lane, for improvements in furnaces.
J. R. Cooper, Birmingham, gun and pistol maker, for improvements in fire-arms.
E. Staite, gentleman, Lombard-street, and W. Petrie, gentleman, King-street, for improvements in electric and galvanic instruments and apparatus, and in their application to lighting, and to motive purposes.
W. Peace, Haigh, near Wigan, Lancaster, and E. Evans, Wigan, engineers, for improvements in steam-engines and in pumps.
J. Lorkin, Ivy-lane, merchant, for an improved instrument or apparatus for beating or triturating viscious or gelatinous substances.
B. Wren, Yarm, York, miller, for an improvement in cleansing and treating certain descriptions of wheat.
D. O. Edwards, Sydney-place, Brompton, surgeon, for improvements in the application of gas for producing and radiating heat.
T. Griffiths, Islington-row, Birmingham, for improvements in the manufacture of tea and other pots and vessels, and other articles made of stamped metal.
J. B. Vuldy, Mile-end, dyer, for improvements in giving a gloss to dyed silk in skeins or hanks.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

W. and C. Eley, Old Bond-street, cartridge case.
F. Gotto, surveyor, Dover, self-discharging effluvia trap.
C. C. Clark, Reading, self-acting water-closet.
I. Benjamin, Old Change, acme brace front.
J. Bell, of the firm of Cort and Bell, Leicester, effluvia trap.
C. Gore, New Charles-street, City-road, gas exhauster.
Forster, Porter, and Co., Wood-street, Cheapside, spring muffler.
C. Maschivitz, Birmingham, letter stamp.

BELFAST.—THE IMPROVED FLAX-DRESSING MACHINERY.—PERSONS requiring MACHINERY for SCUTCHING or DRESSING FLAX from the STRAW, can be supplied on application to the manufacturers,
MacADAM, BROTHERS, & Co.,
ENGINEERS, SOHO FOUNDRY, BELFAST,
MAKERS of the IMPROVED MACHINERY—recommended by the Royal Flax Society of Ireland.
Sept., 1849. 39

TO ENGINEERS AND BOILER MAKERS.—The BIRMINGHAM PATENT IRON TUBE COMPANY MANUFACTURE PATENT LAP-WELDED IRON TUBES (under Mr. R. Prosser's Patent) for Marine, Locomotive, and all Tubular Boilers. Also, TUBES for Gas, Steam, and other purposes. All sorts of IRON GAS FITTINGS.
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For further particulars apply to Mr. Thos. Melling, Rainhill Iron-Works, near Liverpool.

CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a NEW PATENT PROCESS, 42
whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—
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2. For TIN-PLATES, commonly called COKE-PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.
The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

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To shareholders this corporation offers an investment totally free from risk, with a valuable property and increasing source of dividend, such as few undertakings have ever been able to command, whilst the small amount of the shares, wholly paid, will enable persons in every grade of society to participate in the advantages, without the annoyance of any future call.

ASSURANCES EFFECTED ON THE LIVES OF PERSONS CONNECTED WITH THE MINING DISTRICTS, AT EQUITABLE RATES OF PREMIUMS.

ADVANTAGES OFFERED TO THE ASSURED BY THIS SOCIETY.
1. The security of an ample paid-up capital.
2. Exemption of the assured from all liability of partnership.
3. Marine, Fire, and Life Assurances are effected with peculiar advantages by this society, and at a considerable reduction of premium.
4. Policies once granted indisputable, and free of stamp duty to the assured.
5. Policies of twelve months standing are not affected by suicide, duelling, &c., and assigned policies are valid from the date thereof—an advantage of great importance, and peculiar to this society.
6. Credit given for half the premiums during the first five years, at the rate of interest of 5 per cent. per annum.
7. Premiums to be paid quarterly, half-yearly, and annually.
8. The Life Department mutual—the whole of the profits being divisable amongst the life policy holders.
9. Annual Division of Profits (Life Branch) after the first five years.
10. Immediate advances made upon policies upon approved personal security.
11. Claims upon policies to be paid three months after proof of the death of the person assured, or earlier, subject to such regulations as may be agreed upon.
12. No admission nor entrance fees are required, nor is any charge made for the policy.
13. Medical practitioners paid by the office for every case refered to them for their professional opinion.
Applications for prospectuses and forms for shares to be addressed to the directors, 31, Cornhill, London; to John Golding, Warnford-court; Thomas Bayley, Warnford-court; Turner, Brothers, Throgmorton-street, London, stock and sharebrokers; and to James Lane, mine and share agent, 80, Old Broad-street, London.
The directors meet on Thursdays, at Two o'clock.—Assurances may be effected by applying on any day between the hours of Ten and Four, at the office of this corporation, or of the agents in the country.
By order,
AUGUSTUS COLLINGRIDGE, Managing Director.
*** WANTED, AGENTS and MEDICAL REFEREES for the PRINCIPAL TOWNS in the KINGDOM.
COUNTRY SURVEYORS ALSO REQUIRED.

STRUVE'S PATENT MINE VENTILATOR. COST—£150.
TO COLLIERY PROPRIETORS.
Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.
COST of an APPARATUS to produce a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.
The Ventilator has been at work for upwards of six months at the Eaglesbush Colliery, near Neath, working under a rarefaction of 2½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.
LICENSES will be GRANTED on application to
Mr. WILLIAM PRICE STRUVE, Swansea,
CIVIL ENGINEER AND MINERAL SURVEYOR. 44

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.
THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY 45
BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.
BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.
MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.
SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.
For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

TO THE OWNERS OF COLLIERIES, MINES, PLANTATIONS, SAW-MILLS, &c. 46
IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES,
Machine Irons, and Cutting Knives, Steel in Blister, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED with DISPATCH, by
BLAKE AND PARKIN,
THE MEADOW STEEL-WORKS, SHEFFIELD.

The Fourth Edition—Price Sixpence.
A NEW PROCESS FOR PURIFYING THE WATERS SUPPLIED to the METROPOLIS by the existing WATER COMPANIES—rendering each water much softer, preventing a fur on boiling, separating vegetating and colouring-matter, destroying numerous water insects, and withdrawing from solution large quantities of solid matter, not separable by mere filtration.
By THOMAS CLARK,
Professor of Chemistry in the University of Aberdeen.
Richard and John E. Taylor, Red Lion-court, Fleet-street, London. 47

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.
E. J. DENT, 82, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.
DENT'S PATENT DIPLIEDOSCOPE,
or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis. 48

EMIGRATION.—VAN DIEMEN'S LAND AGRICULTURAL COMPANY.
(Established by Act of Parliament and by Royal Charter.)
OFFICE—No. 6, GREAT WINCHESTER-STREET, LONDON.
GOVERNOR—JOHN CATTLEY, Esq.
DEPUTY-GOVERNOR—EDWARD MARSHALL, Esq. 49
DIRECTORS.

Henry Alexander, Esq.	Charles Pearse, Esq.
Thomas Alexander, Esq.	Thomas Helme, Esq.
Capel Cure, Esq.	Robert Helme, Esq.
J. G. Cattley, Esq.	Valentine Knight, Esq.
Stephen W. Cattley, Esq.	Harry Mackenzie, Esq.
Brice Pearse, Esq.	John Pearse, Esq.

Francis Wilson, Esq.
The title deeds of the company having recently been confirmed by Act of Parliament, they are now enabled to OFFER FOR SALE the FEE SIMPLE of every portion of them, consisting of FOUR HUNDRED THOUSAND ACRES, in various parts of the colony; but more particularly invite the attention of emigrants to the eligible districts of Circular Head and Emu Bay.
The company's district at Circular Head contains 20,000 acres, of which 4000 acres lie in the Peninsula, and the residue on the adjoining main land. The climate much resembles that of Devonshire, being remarkably pleasant and salubrious, free from drought in summer, and frost in winter—thus enabling the farmer to carry on his operations throughout the year; and the soil on the main land, though for the most part heavily timbered, is some of the richest in the island, being of a deep black vegetable mould, very friable, easily worked, and producing luxuriant crops of potatoes, wheat, and every description of European grain, fruits, and vegetables, as shown by the result of a thriving agricultural population, who have already cleared and cultivated upwards of 3000 acres there. The company's township of Stanley now boasts a stone-built church, holding 600 persons, schools for boys and girls, with residences for masters and mistresses, a medical practitioner, a stipendiary magistrate, police court, a mill, more than sufficient for all the inhabitants, with all the appliances of a highly civilised community, and the harbour will accommodate vessels of 300 tons burden. Those who are confined as to means can defer the clearing their lands until they have saved some money, which they can soon do, labour being in great demand and food cheap. Timber for sawing and splitting abounds—frost and snow are unknown, and the soil is a rich deep loam, peculiarly favourable for agricultural purposes. The population on the company's lands, according to the census of 1848, was 900, possessing 250 cattle, 700 swine, and 35 horses; they raised produce in 1847 to the amount of £15,000.
There are no convicts employed, nor any stationed within 150 miles of these settlements. The company possess all descriptions of live stock, such as sheep, cattle, horses, swine, and deer, of the purest breed, sent out from England at great expense, and large sums of money have been expended by the company upon their several locations on roads, bridges, farm-buildings, and granaries.
Possessing, as the company's lands do, the various advantages of fertile soil, and a fine climate, with frequent and ready access by water to the neighbouring markets, an abundance of live stock, seeds, farm implements, and stores for sale, and a large agricultural population already located, it must be evident that the newly-arrived and inexperienced emigrant can at once commence operations, without loss of time or unprofitable outlay of capital; they, therefore, offer for sale, 80 acre sections of freehold land on the following terms.—Price £2 per acre. Each purchaser at Emu Bay to have the privilege of purchasing a quarter of an acre allotment in the township of Burnie. A purchaser may have a free passage, or receive 20*l.* to provide himself with one, with further assistance to families. Half the purchase-money may remain on interest at 5 per cent. for 7 years.
The company reserves to itself the right to fords, ferries, and the formation of bridges, and dams across rivers and streams, as well as to the use of indigenous timber, and materials for works of general benefit. It retains also the right of laying out and constructing roads through all the alienated lands—ensuring, however, compensation for damage to parties by their formation, and of making the Colonial Fencing Act applicable to adjoining tenants.
By order, GEO. H. HOWELL, Secretary.

DAMP AND GASEOUS EXHALATIONS. SANATARY MEASURES.
All MEMBERS of BOARDS OF HEALTH are especially DIRECTED to the most EFFECTIVE MEANS which they can ADOPT to PREVENT the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in grave-yards), stagnant water, and collections of foetid refuse, tending to produce a miasmatic state of atmosphere. In situations so effected, the impervious quality of the ASPHALTE of SEYSSEL renders it the most perfect PAVEMENT or COVERING that can be relied upon for hermetically closing, and thereby preventing the rising of moisture and escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the Commissioners on the Fine Arts:— 50
"In 1839, I superintended the construction of a house of three stories on the Lac d'Enghein. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and interwal walls was covered at the level of the internal ground floor with a layer of SEYSSEL ASPHALTE,* less than half an inch thick, over which coarse sand was spread.
Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ in. above the external surface of the soil, and only 19½ in., at the utmost, above that of the sheet of water.
The layer of Asphalte having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."
* This method has been adopted at the new Houses of Parliament.
Seyssel Asphalte Company, Stangate, London. I. FARRELL, Secretary.

EDEN'S FAMILY MEDICINES.—EDEN'S HOOPING-COUGH MIXTURE has attained universal celebrity as a sure and efficacious remedy for coughs, colds, asthma, influenza, pulmonary consumption, and all affections of the throat, chest, and lungs; a positive cure for hooping-cough, and all diseases to which children are subject.—EDEN'S PILLS are acknowledged by all to be the safest and best medicines in the world for the cure of bilious and nervous complaints, gout, rheumatism, bowel complaints, consumption, and general debility.—EDEN'S OINTMENT, as a cure for scrofula, and all cutaneous eruptions of the skin stands unrivalled.—EDEN'S FAMILY MEDICINES are prepared only, and sold wholesale, by Eden and Co., 3, Jewin Crescent, London, and retail by most respectable chemists and patent medicine venders in the United Kingdom, in bottles, boxes, and pots, at 1s. 1½d., 2s. 9d. and 4s. 6d. each. 51

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